THE ORGANIZATION OF A RURAL TUBERCULOSIS SERVICE

By STEPHEN A. DOUGLASS, M.D.

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BY

STEPHEN A. DOUGLASS, M.D.

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OTHER PUBLICATIONS CONCERNING THE CATTARAUGUS COUNTY HEALTH DEMONSTRATION

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First Annual Report, 1923, Cattaraugus County Board of Health and Health Demonstration. *Cattaraugus County Board of Health*, Olean, New York 32 pp.*

Second Annual Report, 1924, Cattaraugus County Board of Health and Health Demonstration, by Leverett D. Bristol, M. D., 40 pp.*

Third Annual Report, 1925, Cattaraugus County Board of Health and Health Demonstration, by Stephen A. Douglass, M. D., 50 pp.*

Fourth Annual Report, 1926, Cattaraugus County Board of Health and Health Demonstration, by Stephen A. Douglass, M. D., 107 pp.*

Fifth Annual Report, 1927, Cattaraugus County Board of Health and Health Demonstration, by Stephen A. Douglass, M. D., and Reginald M. Atwater, M. D., 80 pp.*

The County Health Unit. The Next Step in the Development of Rural Public Health Work, by Governor Alfred E. Smith and others. *Milbank Memorial Fund*, 1927, 40 pp.*

Cattaraugus County and Our Rural Health, by John A. Kingsbury, *The American Review of Reviews*, 1927, pp. 415-420. *National Municipal Review*, June, 1927, pp. 363-369.*

Educational Aspects of the Health Demonstration, by John A. Kingsbury, *The World's Health*, October, 1927, vii, No. 10, pp. 367-372.

Improving the Dietary Habits of a Rural Community, by Ruby M. Odell, *Milbank Memorial Fund*, 1929, 56 pp.*

The New York Health Demonstrations in Syracuse and in Cattaraugus County, by Sir Arthur Newsholme, M. D., *Milbank Memorial Fund*, 1927, 20 pp.*

Program of School Nursing for Cattaraugus County Schools, 1927-1928, by B. B. Randle, R. N., *Cattaraugus County School Health Service*, 414 Laurens Street, Olean, New York.

Three Years of School Health Work in Cattaraugus County, by C. A. Greenleaf, M.D., *Milbank Memorial Fund*, 1929, 96 *pp.**

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FOREWORD

THE first comprehensive rural program for the control of tuberculosis in New York State was inaugurated by the Cattaraugus County Health Demonstration in 1923. This demonstration is one unit of the New York Health Demonstrations, to which the Milbank Memorial Fund has made appropriations to supplement the resources of public and private health agencies in three localities in New York State, in order to help them develop locally effective and adequate public health administrative machinery. A second health demonstration is under way in the urban community of Syracuse, and the third is located in the metropolitan Bellevue-Yorkville district of the City of New York.

This report outlines the details of organization and the results of the early years of operation of this pioneer program for the county-wide control of tuberculosis in New York State. It is published in the hope that the experiences recorded here may be helpful to other rural communities where the inauguration of tuberculosis control measures is contemplated, and that it may present helpful comparisons of methods, likewise, to individuals who are engaged in measures in other rural areas where programs for the control of tuberculosis are already well established.

With the same general purpose in view, the Milbank Memorial Fund has previously published two companion reports to this volume. One of these, "School Health Work in Cattaraugus County," records the experiences of the early school health organization; and the other, "Improving the Dietary Habits of a Rural Community," recounts the findings of three years of nutrition work in Cattaraugus. In these publications no claim is made that these individual health

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services, as they have been set up in Cattaraugus County, constitute either a pattern to be followed or a standard to be achieved. They are merely narratives of early organization experiences, and, as such, it is believed that they represent a contribution to available literature on these subjects.

JOHN A. KINGSBURY
Secretary

Milbank Memorial Fund
1930

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INTRODUCTION

THE purpose of this report is solely to describe the procedure followed by the public officials of Cattaraugus County during the initial five-year period, beginning January 1, 1923, in developing the first rural county-wide organization for the control of tuberculosis in New York State, this project having been undertaken as the central problem of the Cattaraugus County Health Demonstration. The demonstration, established by the local governmental authorities with the aid of appropriations from the County, the State, and the Milbank Memorial Fund, afforded Cattaraugus County an opportunity to develop a modern county health service which would test the value of applying in a rural area, at a cost which it was believed might in future be entirely met by the community, those methods of public health administration which had been used effectively in cities to lower morbidity, to reduce mortality, and to raise the standards of individual and community health.

The decision to concentrate on a tuberculosis program as the major activity of the rural health demonstration was based upon the following considerations.

Tuberculosis, in spite of the many factors that have contributed to its reduction, still remains one of the major causes of death. The intensive and extensive work done in the field of tuberculosis prevention has been attended by the improvement of methods and facilities for the prevention of disease and the promotion of public health generally. Furthermore, anti-tuberculosis work has been a most effective factor in promoting general public health practice. The general demonstration program, necessarily, was concerned with important problems of public health which called for intensive effort in

many special fields and included not only measures for the control of tuberculosis and other communicable diseases but, in addition, special activities such as maternal, infant and child hygiene, school hygiene, and social and mental hygiene, together with adequate provision for sanitation and food inspection, and measures to combat the so-called degenerative diseases of adult life. Associated with all this was an educational campaign to promulgate the principles of disease prevention as especially applied to tuberculosis, promoting personal hygiene and, above all, emphasizing the importance of the periodic health examination of each individual in the community, so far as possible, by his own private physician.

The content of this report, however, is limited to an account of the methods used in organizing and developing the work of the Bureau of Tuberculosis of the County Department of Health and describes other features of the rural health demonstration only as they touch upon, or contribute to, the work of the tuberculosis service.

It is too early to measure with finality the accomplishments of the tuberculosis service in terms of reduced morbidity and mortality rates, or to predict the effect that the work may have in improving the health of future generations of Cattaraugus County people. The work is being carefully studied and will be appraised at a later date. For the present it is only possible to show the methods that have been used in setting up and administering the tuberculosis program and to record certain quantitative accomplishments.

Since, however, Cattaraugus County has the distinction of being the first county in New York State to develop a comprehensive county-wide public health program, as well as the first to take advantage of the permissive legislation of 1923 enabling county boards of supervisors to create general health districts and to establish county health departments to admin-

ister them, it is believed that this brief record of the procedure followed in the early stages of the organization work may contain some helpful suggestions for rural counties in New York and elsewhere.

The writer, who was, during the early period of the work described in this record, director of the Bureau of Tuberculosis, and during the latter period, county health officer, wishes to take this opportunity to express his appreciation to the members of the Technical Board of the Milbank Memorial Fund for counsel and technical advice which proved consistently sound; to Mr. George J. Nelbach and the late Dr. A. C. Burnham of the New York State Committee on Tuberculosis and Public Health, and to representatives of the New York State Department of Health, who gave him valuable advice and assistance in the development of the program; to Dr. William C. Jensen and Miss Laura A. Gamble, R.N., of the Cattaraugus County Health Department, who performed valuable service in the organization and development of the work; and to Miss Lucy J. Chamberlain of the Milbank Memorial Fund who assisted in preparing this manuscript for publication. The writer also wishes to thank those persons in Cattaraugus County—the members of the medical profession, the personnel of the school hygiene service, the public health nurses and officials of the County Department of Health, and the staffs and members of voluntary organizations engaged in public health work—for their splendid cooperation in the work of the Bureau of Tuberculosis.

Stephen A. Douglass, M.D.

Valley View Sanatorium
Paterson, New Jersey
1930

THE ORGANIZATION OF A RURAL TUBERCULOSIS SERVICE

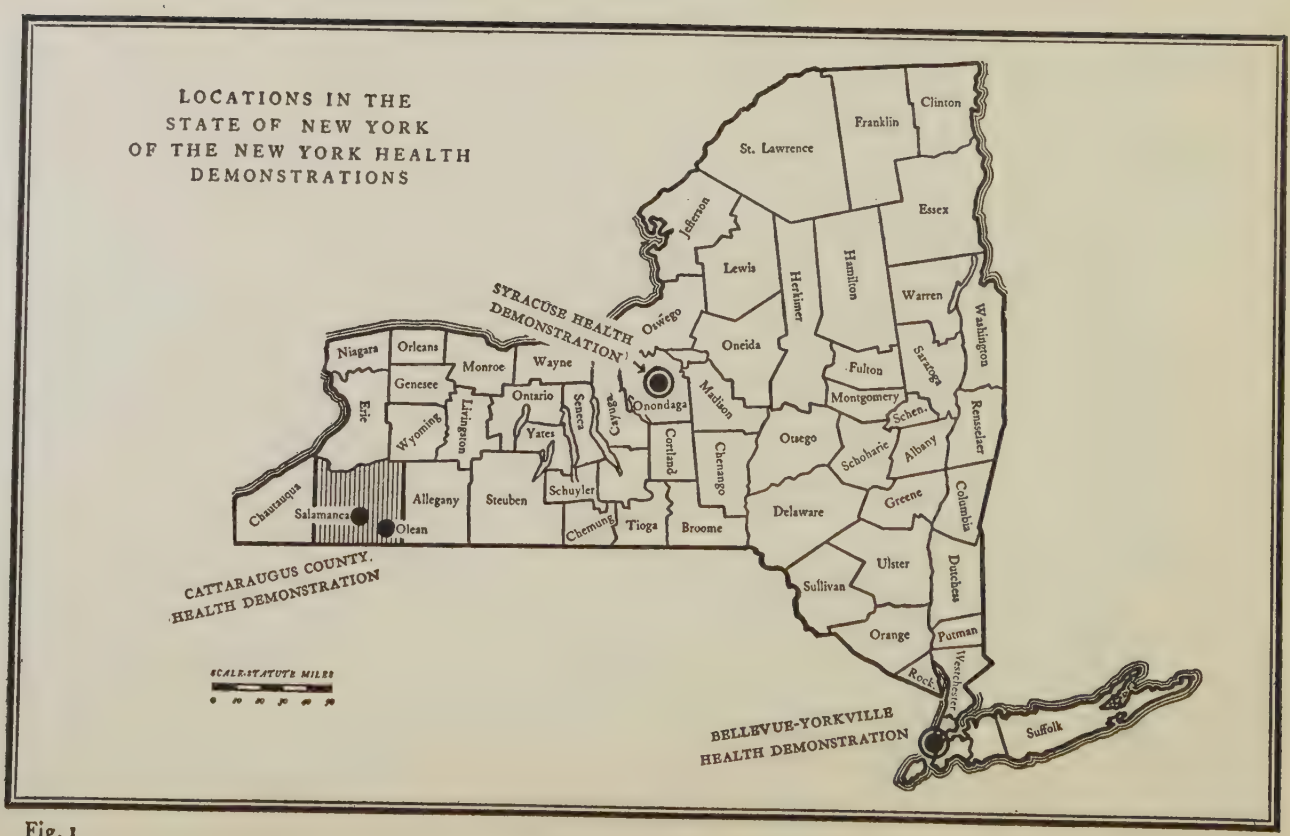

LOCATIONS IN THE
STATE OF NEW YORK
OF THE NEW YORK HEALTH
DEMONSTRATIONS
SYRACUSE HEALTH
DEMONSTRATION
CATTARAUGUS COUNTY
HEALTH DEMONSTRATION
BELLEVUE-YORKVILLE
HEALTH DEMONSTRATION
SCALE-STATUTE MILES
St. Lawrence
Franklin
Clinton
Essex
Jefferson
Lewis
Herkimer
Hamilton
Warren
Washington
Saratoga
Oswego
Oneida
Fulton
Montgomery
Schen.
Rensselaer
Albany
Madison
Onondaga
Cayuga
Seneca
Ontario
Wayne
Monroe
Orleans
Niagara
Genesee
Wyoming
Livingston
Erie
Otsego
Schoharie
Cortland
Chenango
Yates
Schuyler
Steuben
Allegany
Chemung
Tioga
Broome
Chautauqua
Salamanca
Olean
Delaware
Greene
Columbia
Ulster
Dutchess
Sullivan
Orange
Putnam
Rockl.
Westchester
Suffolk

Fig. 1

I

ORGANIZATION OF THE CATTARAUGUS COUNTY HEALTH DEMONSTRATION

THE Cattaraugus County Health Demonstration began in January, 1923, with the creation, by the local Board of Supervisors, of a County Board of Health —the first in New York State to be established pursuant to the permissive law[1] authorizing supervisors to take such action. Following the creation of the general health district, the two cities of Olean and Salamanca, by agreement, became a part of the district, thus making the activities of the County Board of Health county-wide in scope.

While, on the one hand, experience has shown that effective tuberculosis work usually stimulates the development of measures to advance the public health, on the other, it has been found that a general health program does not necessarily lead to special activities for the prevention and control of tuberculosis. Because it was believed that an effective tuberculosis campaign would improve the general health conditions of the community, in planning the Cattaraugus County Health Demonstration it was anticipated that the first study in the area would be that of the tuberculosis problem, and the first effort toward organization would involve the development of existing local activities in that particular field.

Prior to the establishment of the county health unit, Cattaraugus, in general, was representative of other rural counties in the United States, in health, social, and economic conditions, and the tuberculosis mortality rate in the County was similar to the average tuberculosis rate in twelve representa-

[1]Laws of the State of New York, 1923, Section 20-b, Public Health Law.

tive rural counties in New York State. The County already possessed the basic machinery necessary for a comprehensive health service, and it had demonstrated some progress in setting up and in conducting a community health program. Its environmental make-up presented conditions typical of sparsely settled rural communities and of semi-rural localities in New York State and in the United States.

The County, which was settled in 1808, may be described as an elevated plateau fourteen hundred feet above sea level, broken by valleys and ravines, and situated in the southwestern portion of New York State adjoining Pennsylvania. It is roughly rectangular in shape, having a population of approximately 74,000 (1925 State census) and an area of 1,343 square miles. Communication is made rather difficult by reason of many hills and intersecting valleys and by the heavy snows of long and severe winters.

Cattaraugus County is typically rural, relatively isolated, and affected only slightly by recent immigration. The principal cities are Olean, with a population of 21,332, and Salamanca, with a population of 9,878 (1925 State census). In addition, there are thirteen villages, with a total population in 1925 of 13,932. The rural population, including villages, is approximately 42,000; and the urban population, 32,000. A marked urbanization of the population has been going on for the past quarter century. The rural population declined steadily between 1900 and 1920, the decline being accentuated by adverse geographical and climatological conditions, and by the industrial development of the adjacent cities.[2] The urban population, on the other hand, more than doubled during the two decades following 1900, partly as the result of annexation and partly as the result of the general tendency toward migration to the cities. In the past five years, however,

[2]Smith, Alfred E., Seeing the State as a Whole. *Survey Graphic*, May, 1925.

the growth of the urban population has been slightly less than 5 per cent. The rural population and the population of the villages have remained practically stationary during the period.

The majority of the inhabitants of the County are descendants of the original "Yankee" settlers. Ten per cent of the population is foreign-born, principally Poles and Italians, who, for the most part, have settled in the two cities. Indians, to the number of 752, live on the Allegany Reservation, and, in addition, approximately 175 live on that section of the Cattaraugus Reservation which extends into Cattaraugus County.

The birth rate is rather low compared with that of the registration area. During a five-year period ending 1926, the birth rate averaged twenty. An interesting feature of the age distribution of the population is that the percentage of the inhabitants between the ages of twenty and forty-five is lower than that of New York State, exclusive of New York City, and very definitely lower than that of the registration area, while the percentage of the population over forty-five is higher than exists in general in the State and in the registration area. It is probable that this age distribution is responsible to a large extent for the relatively low birth rate and the high general mortality rate, and is another evidence of the continued depletion by migration of the most vigorous rural stock to the advantage of the more populous centers. The general mortality rate was relatively high and stationary, averaging 15 during the five-year period 1918-1922. During the five-year period 1923-1927, the rate declined to an average of 13.5.

In recent years, dairying has been considerably developed and is the chief rural industry. There are approximately 80,000 dairy cattle, representing 4,500 commercial herds, in the County. The majority of these herds are accredited as having passed two consecutive annual tests, or three semi-

annual tests, without the discovery of any tuberculous cattle in the herds.

In 1925, the one hundred industrial plants in operation in the County were engaged mainly in oil refining, machinery and metal work, tanning, woodworking, and the manufacture of chemical products, glass and clay products, cutlery and textiles. A large proportion of these plants have comparatively few employees, 60 per cent having fewer than one hundred. The number of women employed in industrial establishments is comparatively small. No plant reports children among its employees. It is estimated that about 1,100 of the workers employed in plants are foreign-born. These workers are predominantly Polish and Italian, and are employed principally in the plants producing leather and chemical products. There are in the County about 23,000 adult male workers; 10,000 employed in industry, 7,000 in business, and 6,000 in farming.

Early in 1923, the Board of Supervisors appointed a County Board of Health, which in turn appointed a full-time county health officer, who was responsible for the organization and development of the work of the County Department of Health. The program, in addition to activities in the field of tuberculosis, provided for comprehensive work along allied health lines.

For purposes of administration of the work of the Department, the following bureaus were established: Bureau of Records and Statistics; Bureau of Communicable Diseases; Bureau of Tuberculosis; Bureau of Maternal, Infant and Child Hygiene; Bureau of Public Health Nursing; Bureau of Laboratory; Bureau of Health Education; and Bureau of Sanitation and Food Inspection.

Associated closely with the Health Department was the Cattaraugus County School Health Service, a county-wide organization for school health work, created in 1923 by the

County Board of Supervisors under the provisions of a permissive law passed by the New York Legislature.[3] The administrative staff of the School Health Service consisted of a part-time medical director, a full-time county school nurse, and part-time medical examiners appointed by each of the 269 local school districts. The efforts of these school health officials were devoted to the development of a uniform county-wide school health program for the 291 city and rural schools in Cattaraugus County. The services of the various bureaus of the County Department of Health were made available in carrying out the school health program which, in general, provides for regular physical examinations, nursing service, dental hygiene, nutrition work, health instruction, and, in addition, special activities aimed at the prevention of diseases such as tuberculosis and diphtheria.

It was apparent that it would be difficult in a county as large as Cattaraugus, with 1,343 square miles and a population of 74,000, for an adequate health service to be administered to the entire County from a central office. For this reason, the County was divided into six districts, a northeastern district, with headquarters at Franklinville; a north-central district, with headquarters at Ellicottville; a northwestern district, with headquarters at Cattaraugus; a southeastern district, with headquarters at Olean; a south-central district, with headquarters at Salamanca; and a southwestern district, with headquarters at Randolph. Subsequently, as the work progressed and developed, at the request of the physicians and citizens of the communities, it was decided to establish two additional sub-stations, one at Delevan in the northeastern portion of the County, and one at South Dayton in the northwestern portion of the County. In each of these areas was located a district health center or health office. These sta-

[3]Laws of the State of New York, 1924, Chapter 194, Section 577-b.

tions serve as headquarters for the public health nursing service, for the holding of various types of clinics and conferences, and for all other activities in connection with the work of the County Department of Health.

Each district station has at least three well-equipped rooms, one of which serves as the office of the public health nurses in the district, one as a general meeting or waiting room, and one as an examination or clinic room. These stations are maintained, or the rental is largely paid, by the communities in which they are located. The health center, through its clinic and nursing service, is the headquarters of the anti-tuberculosis activities of the Department of Health in the district.

II

ORGANIZATION OF THE CATTARAUGUS COUNTY TUBERCULOSIS SERVICE

THE program for the control of tuberculosis, which was established under the County Department of Health in the fall of 1923, was necessarily influenced to a considerable degree by the findings of the preliminary survey of the health, social, and economic factors in Cattaraugus County, briefly outlined in the preceding chapter.

The first postulate to the control of tuberculosis in a community is that the tuberculosis service shall have access to the cases. In the control of a disease which occurs at all ages and whose ramifications are widespread throughout the community, cases must be sought and found. It is not sufficient to wait until cases present themselves. That was the older conception, and it failed to bring far-reaching results. The immense difference between waiting for cases and searching for them was forcibly illustrated in the Framingham demonstration, in which it was shown that, while prior to the inception of the investigation an average of thirteen cases per annum was reported, the average became forty-three during four years of the intensive method of inquiry and search.

It seems almost unnecessary to point out the obvious fact that until the living cases of tuberculosis are reported as soon as possible after diagnosis, no successful campaign can be carried on for the prevention and control of the disease. Failure on the part of physicians to report cases of tuberculosis may be accounted for in a number of ways, two of the most important reasons being the physician's fear of stigmatizing private patients and the physician's belief that some other physician

who has previously treated the patient has reported the case.[1]

The mere reporting of tuberculosis by physicians and those in charge of hospitals and clinics, while interesting, does not of itself justify the labor, the expense, and the time that it involves. The all-important consideration is the use to which health officials put the reports which they receive. If they are made to serve a social or public health purpose, the procedure well justifies the effort. There are many communities, however, where reports are received as a matter of routine and tradition and are not subjected to that critical study which is so essential in community health work. Wherever such a state of affairs exists, the physicians and others in the community who may be held more or less strictly responsible to report cases of tuberculosis are well justified in resenting this trespass upon their time for no good purpose at all.

In health department practice, it is essential that the law requiring reporting be rigidly enforced, and there must be facilities for dealing efficiently with the cases reported. It has been amply demonstrated that reporting is best where health departments are prepared to follow up the cases promptly after they are reported. In order to make case reporting of value, the supervision of these cases by public health nurses should be made mandatory. Dr. Biggs' statement is still apropos: "Certainly the time has now arrived . . . when sanitary authorities should not only adopt regulations for the compulsory registration of tuberculosis, but they should imperatively demand that the facilities necessary to enforce such regulations be furnished, and they should follow up these regulations with all the measures necessary to put into operation an efficient scheme for the surveillance of tuberculous disease. And the mass of the medical profession certainly

[1]Hill, Alice M., A Study of the Reporting of Tuberculosis Cases. *Journal of Outdoor Life*, April, 1926, xxiii, No. 4, p. 214.

must be prepared to assist and promote the extension of such work in every way possible."

The health officer demands only those prerogatives which are his by right of his office as a guardian of the public health. One of the prerogatives which he cannot relegate or renounce is his right to a reasonable control of cases of tuberculosis. This reasonable control of the active case of tuberculosis is impossible unless the physician conscientiously reports as required by law all known or suspected cases of the disease.

A policy of cooperation and mutual support will dissipate much of the misunderstanding which has existed in the past, and will result in greater efficiency in the reporting of cases and will culminate in a more thorough and mutually acceptable system of supervision.

The most frequently employed measure in estimating the completeness of registration of tuberculosis is the ratio of cases registered to deaths during the same period. The ratio is based on incidence of disease in the area and quality of reporting, which obviously, if an index at all, can only be acquired through adequate, well-organized case-finding facilities together with consistent reporting on the part of all physicians.

Lack of facilities for early diagnosis and the fact that there are in every community, and perhaps always will be, a certain number of active cases which have been diagnosed and never reported and a certain number of undiagnosed cases, make it difficult to arrive at even an approximate ratio as to just how many cases could be reported in any one year. However, a ratio of three cases annually would, it would seem, indicate active and efficient case-finding and reporting, and is possible of attainment even in rural areas.[2]

[2]Community Health Organization, Chapter IV: Plan for a Rural Community. American Public Health Association, 1927.

For a decade prior to the organization of the official tuberculosis program established by the Cattaraugus County Department of Health, the ratio of reported cases to deaths in the County averaged 1.4. In 1924, the first year of an organized case-finding campaign, the cases reported as active, apparently arrested, or arrested, gave a ratio of 6.9, which obviously was a cumulative ratio. In 1925, the ratio declined to 5.5. For 1926, the death rate remaining practically stationary, the ratio further declined to 4.4, and during 1927 to 3.7.

In 1924, a survey of cities by the National Tuberculosis Association showed an average annual ratio of reported cases to deaths as 1.6. New York State, exclusive of New York City, reported 1.9 in both 1924 and 1925. The results of a study of 4,259 cases occurring in New York State showed that nearly one-half of the cases which terminate in death had not been reported when death occurred, and that less than 25 per cent of the total had been reported more than a year before death.

In a recent article based on a survey of reporting covering the registration area, Robert E. Plunkett sums up the situation as follows: "These figures present a very discouraging picture of case reporting in this country, and should be considered a challenge to both official and unofficial groups interested in this phase of public health work."[3]

In comparison with rural counties in New York State, Cattaraugus County had somewhat better facilities and better organization for carrying on tuberculosis work than is usually found, but, as is frequently the case, lack of adequate finances and official status resulted in a considerable limitation of the work. The major share of the anti-tuberculosis work was carried by the County Tuberculosis and Public Health Associa-

[3]Plunkett, Robert E., M.D., Health Department Supervision: Reporting and Follow-up Work in Tuberculosis. *Transactions of the National Tuberculosis Association*, 1926, pp. 413-418.

tion, of which the Olean Anti-Tuberculosis Society was the most effective unit. This organization maintained a tuberculosis nurse, whose efforts were confined to the city of Olean. The Olean Anti-Tuberculosis Society was directly responsible for the establishment of the only open-air school in the County, and initiated and maintained for several years the Children's Health Camp, which later became an established activity of the County Association. The County Tuberculosis and Public Health Association also carried on a limited health education program.

The County maintained a sanatorium, having a capacity of thirty-two beds or eighteen less than the minimum standard based on a bed for each annual death. There were no facilities for the care of children. Prior to 1923, the principle that the effectiveness of the sanatorium depends upon its ability to serve the incipient cases first had been practised only to a limited extent. In common with many rural county sanatoria in New York State and elsewhere, the sanatorium had been utilized chiefly as a domicile for patients in advanced stages of tuberculosis. The results attained with this class gave rise to the general impression locally that sanatorium treatment was ineffective and that most patients who were admitted to the sanatorium died there.

The County employed a county tuberculosis nurse, whose headquarters were at the sanatorium. A considerable part of her time was utilized in home bedside nursing, in transporting patients to and from the sanatorium, in following up as best she could the patients discharged from the sanatorium, and in assisting at the clinics. Due to the territory to be covered, a large part of her time was spent in travel, which reacted against the possibility of adequate supervision of known tuberculosis cases. In addition, a certain amount of her time was given to the Christmas Seal campaign and to securing candi-

dates for the summer health camp conducted annually by the County Tuberculosis and Public Health Association.

Tuberculosis clinics were held once a week at the clinic in Olean, which was maintained by the Olean Anti-Tuberculosis Society, and additional clinics were held at irregular intervals at several points in the County. The clinic facilities in the various communities, excepting Olean, were not always of the best. This was specially true in remote rural districts. X-ray facilities were not available. The superintendent of the county sanatorium served as clinician and consultant at the clinics and was aided by the county nurse and occasionally by voluntary workers. The attendance at the clinics was low, the average being about four. The 1921 annual reports of the county nurse showed an average of fifty-two clinics, with a total attendance of 235. Most of the cases attending the clinics were referred by the county nurse or by voluntary workers, the physicians of the County referring very few cases.

While there were other facilities available for the control of tuberculosis in Cattaraugus County prior to 1923 which were potential assets, they were not actually a part of an organized tuberculosis program. For example, there were sixty-five private practitioners in medicine who were providing medical care and treatment for certain tuberculosis cases. Then, also, the two cities of Olean and Salamanca, the thirteen incorporated villages, and thirty-three towns each had a health officer, a local physician on part-time service. A small laboratory, operated by the City Department of Health in Olean, under the direction of a part-time physician, provided a limited service.

A study of the records of the county tuberculosis nurse for the year ending December 31, 1922, indicated that there were 237 known cases of tuberculosis in Cattaraugus County. Only seventy-seven, however, were on the visiting list of the county

nurse. During 1923 this list of 237 cases was carefully checked, with the result that 102 cases were cancelled from the list because they had moved from the County, died, or could not be located. This left the actual number of known cases at 135, as compared with the previous official estimate of 237. It should be borne in mind, however, that these cases, excepting the seventy-seven just mentioned, were not known or followed up by any central authority but were merely on record as having been reported to the State Department of Health.

Responsibility for the administration of the tuberculosis program for the entire County was centralized in the Bureau of Tuberculosis of the Cattaraugus County Department of Health which was organized in November, 1923, by the appointment of a director.

The director of the Bureau of Tuberculosis is clinician to the County Department of Health and, as such, is responsible for the clinical service, compilation in conjunction with the Bureau of Records of the medical and statistical data relative thereto, diagnostic reports to private physicians, the reporting of positive cases of tuberculosis to the forty-eight local health officers previously described, and general supervision of the follow-up work on positive, suspect, and contact cases of tuberculosis in the various districts, through the district nursing service. The superintendent of the sanatorium is employed part time as assistant director of this bureau.

Under this arrangement the Bureau of Tuberculosis has control of, or access to, all necessary anti-tuberculosis machinery, i.e., statistical, clinical, dispensary, and laboratory service, follow-up nursing, and sanatorium facilities, together with medical inspection of underweight school children, and of children in the open-air school and in the summer camp.

The entire program of the Bureau of Tuberculosis was based upon the application of methods of proven value. The

aim of the bureau was to utilize all existing agencies in any way interested in tuberculosis work in the County, and to supplement and further develop their activities in order to establish a county-wide tuberculosis service which would function as adequately as possible. As a means to this end, the functions of the Bureau of Tuberculosis, in cooperation with the nursing service of the County Department of Health, were:

1. To assist local physicians in diagnosis of early or suspected cases and to offer suggestions relative to accredited methods of treatment;
2. To create in the infected individual and his family the proper attitude toward tuberculosis;
3. To carry to the general public the necessary information regarding the prevention and treatment of tuberculosis;
4. To effect, through the agencies of the medical profession and the tuberculosis hospital, a more efficient curative and prophylactic service;
5. To arouse each community to a realization of its responsibility to the infected individual and to assist in the establishment of adequate clinic and hospital facilities for the treatment of tuberculosis.

In order to carry out this service, the following plan of organization was proposed:

1. An administrative service for the general direction of the tuberculosis program and for the coordination of various measures and facilities for the control of the disease;
2. Regularly scheduled diagnostic clinical service directed toward the discovery of all positive cases; periodic reexamination of such cases, in cooperation with the attending physicians; and intensive diagnostic study of all suspects and contacts;
3. Consultation service available to the physicians of the County at all times, either in their offices, at the clinics, or in the patients' homes;

4. X-ray service available at the clinics or in the patients' homes;

5. Laboratory service furnished by the county laboratory;

6. School medical service having for its object the examination of (a) school children who are more than 10 per cent underweight, (b) habitual absentees, and (c) children referred by school physicians or nurses, because of suspicious symptoms or physical findings;

7. Public health nursing service operating from each of the district stations providing for home visiting for cases undergoing home treatment; educational measures for the family, with thorough follow-up study of contacts and suspects; and instruction in nutrition under the supervision of a nutrition specialist;

8. General popular health education through the means of newspapers, distribution of popular health literature, lectures, and moving pictures to promote early diagnosis, popularize annual health examination, and otherwise educate the people in public health;

9. Social welfare service to insure adequate relief of the tuberculous poor and aid in other social problems.

After this plan had been explained in detail to the County Medical Society and its advice and support enlisted, the following steps were taken to develop an organization adequate to carry out the tuberculosis program in Cattaraugus County:

1. The County Department of Health set up the Bureau of Tuberculosis as previously described. This bureau, directed by a full-time tuberculosis specialist, with a second specialist as assistant, and equipped with X-ray apparatus, an operator, and the necessary clerical service, was charged with administering the tuberculosis program throughout the County.

2. The assistant director of the Bureau of Tuberculosis was given charge of the county tuberculosis sanatorium. The sanatorium was enlarged, its bed capacity increased, and a special children's ward provided.

3. Five local practising physicians, all members of the County Medical Society, were given and accepted the

opportunity to attend a post-graduate course in the Trudeau School of Tuberculosis at Saranac Lake.

4. The Bureau of Public Health Nursing of the County Department of Health, with a staff of fifteen nurses under the supervision of a nursing director and three nursing supervisors with specialized training, organized a generalized public health nursing service. Under this plan public health nursing service was distributed equitably to the eight health districts previously described, each staff nurse covering a limited area and devoting a substantial part of her time to the tuberculosis program.

5. The small laboratory of the Olean City Health Department, which had for some years provided limited service in the diagnosis of tuberculosis, was converted into a well-equipped county laboratory with a staff consisting of a full-time medical director, a laboratory technician, and a clerk.

6. The Bureau of Records in the County Health Department provided full-time statistical and clerical service for recording cases of tuberculosis and for making studies of such problems as disease-incidence and the results of treatment. In cooperation with the State Department of Health, a list of deaths occurring from tuberculosis in the ten-year period prior to the establishment of the County Department of Health, together with a list of cases which had been reported, was compiled from the official records at Albany. Names of other cases were obtained from the record of the county tuberculosis nurse and from other sources. The data accumulated from these sources furnished the material for the initial files, from which there was later developed a comprehensive record system.[4]

7. The Cattaraugus County Farm Bureau, supported partially by the county government, which had already made an excellent start in organizing a campaign to eradicate bovine tuberculosis from the 80,000 cattle described earlier, was given financial aid with which to augment this service and secure the advice of outstanding scientific authorities on the control of bovine tuberculosis.

[4]The tuberculosis record system as it existed in 1927 is described in some detail in the Appendix, pp. 73-75.

Improvements were also made in the work of the voluntary health organizations in Cattaraugus County through the employment of additional staff workers and the expansion of their programs.

At the present time, and undoubtedly for some time to come, a considerable portion of the efforts directed toward tuberculosis control must be carried on by private agencies. It was indeed the voluntary agency that led in the promotion of the anti-tuberculosis movement, and it is only during recent years that health departments have begun to assume at all adequately the direction and responsibility of this, perhaps their largest single problem of disease prevention.

While the private agency will always plan for the eventual adoption of its work by the official health department, there will ever remain, even after the major part of the tuberculosis program is taken over officially, a number of distinctive contributions which the unofficial organization must continue to make.

The Olean Anti-Tuberculosis Society inaugurated the first definite tuberculosis program in the County, established the first tuberculosis clinic, employed the first tuberculosis nurse on a full-time basis, established the first open-air school, and was largely instrumental in the establishment of the county sanatorium. Tuberculosis clinics were originally held in the offices of local physicians interested in tuberculosis work, but later an accredited clinic was established in the Olean City Building, the superintendent of the county sanatorium serving as clinician. It is interesting to note that the activities originally organized by this Society are being carried on as an integral part of the tuberculosis program of the County Department of Health.

After the inauguration of the county-wide tuberculosis program in 1923, the facilities of the Cattaraugus County

Tuberculosis and Public Health Association were increased. The extension of the limited program in health education, previously carried on by the Association, was made possible by adding to the staff of the Association an executive secretary and by the provision of additional clerical service and facilities for popular health instruction.

The Children's Health Camp, maintained by the Association each summer, was moved to a better location in the Allegany State Park, and the capacity of the camp gradually increased from 20 to 150 beds. Here, during the period of the camp, children between the ages of six and twelve, selected by the public health nurses because of malnutrition or history of "contact" to tuberculosis, are given the benefits of fresh air, regular habits, carefully selected food, and health instruction. All children, on admission to the camp, are examined by the director of the Bureau of Tuberculosis. A dental clinic is conducted at the camp, and a trained nurse is in constant attendance. For the past two years an effort has been made to have all major defects of applicants corrected before admission. In 1923 the enrollment of the camp was fifty-five; in 1924 it increased to 113; in 1925 it was 140; and in 1926, 141.

The camp has grown to its present proportions from a small beginning in 1914, when a group of women in Olean and Portville organized and equipped an open-air camp at White's Glen, a short distance from Olean. The first camp took care of about twelve children. The equipment of the present camp in Allegany State Park has been made possible by the increased annual returns from the Christmas Seal sale, by the gift of a recreation pavilion from the Milbank Memorial Fund, and by the generosity of the Allegany State Park Commission, which has provided for a mess hall, including dining room and kitchen, infirmary, administration cabin, thirty-five tents, cots, mattresses, blankets, and other necessary equipment. The

camp has its own water supply from artesian wells, and its own lighting and ice plants. The camp area covers forty acres and includes a playground, swimming pool, and baseball ground.

The only open-air school in Cattaraugus County, established by the Olean branch of the Association, is now conducted by the Olean Board of Education, with the assistance of the Olean Anti-Tuberculosis Society. It accommodates forty children, who are for the most part tuberculosis contacts and underweight. The regular hours of the public school system in Olean are observed in the school, but special facilities for fresh air, rest, and special nourishment are provided, as well as follow-up service by the Olean school nurse in the homes of the children.

Among other changes made in the program of the Association as the result of the organization of the county-wide tuberculosis service, was the addition of a social service department, which now employs a staff of three social workers. This service is closely correlated with that of the generalized public health nursing service of the County Department of Health, which, in addition to carrying out its local program, acts as the agency by and through which the State and local health activities are coordinated in the County. By this arrangement, proper sequence and proper relative value can be given in coordinating special phases of health work into a well-balanced program best suited to the needs of the particular area.

III

THE ADMINISTRATION OF THE TUBERCULOSIS SERVICE

PREREQUISITE to the work of the Bureau of Tuberculosis in developing an efficient program for the control of tuberculosis in Cattaraugus County was the discovery of the existing cases of tuberculosis within the County. With this end in view, an intensive case-finding survey was launched by the medical director of the bureau. An important part of this procedure was the establishment of an adequate diagnostic clinic service.

The clinic service was organized in Cattaraugus County on a permanent basis late in 1923. The clinic schedule was arranged to provide adequate clinic service according to the population of the six districts. The clinics were held at the district health stations, being scheduled regularly each week in Olean, semi-monthly in Salamanca, and once a month in the four other health districts: Cattaraugus, Ellicottville, Franklinville, and Randolph. During the early part of 1924, the clinic service was so developed that the services of a full-time X-ray technician and an assistant clinician became necessary, thus relieving the director of much routine work and enabling him to develop further the work of the bureau.

Clinic attendance is under the control of the physicians and nurses in the districts. The cases are scheduled for an appointed time, insuring prompt service. As nearly as possible a regular routine is followed in all clinics.

In every case, examination of nose, throat, mouth, glands, thyroid, heart, and lungs is made. All doubtful cases are X-rayed. Children with suspicious findings or history are

given a tuberculin test when possible. The result of the examination is promptly reported from the clinic record to the private physician, positive cases to the health officer, and after tabulation the record is returned to the district health station. Follow-up work, under the direction of the family physician, is then carried out by the district nurses for positive cases of tuberculosis, for suspected cases, and for contacts.

In order to standardize medical diagnosis and classification, the bureau conformed to the diagnostic standards for adults of the National Tuberculosis Association and to the diagnostic standards for children of the Framingham Community Health and Tuberculosis Demonstration. In August, 1925, the bureau adopted the standards of diagnosis for juvenile tuberculosis, which were adopted by the American Sanatorium Association in June of that year.[1]

During the first year of the demonstration, 1923, practically all examinations were conducted at the regularly scheduled diagnostic clinics. Early in 1924, a consultation service was developed, available at all times to the physicians of the County, either in their offices, or at the patients' homes, the aim being to assist physicians in the diagnosis and treatment of tuberculosis and to stimulate their interest in earlier diagnosis and reporting, as well as to enlist their cooperation and interest in searching for cases, particularly in the "contact" group. This service has become an increasingly important factor in the case-finding campaign. In 1926, 133 private consultations were furnished to physicians and ninety-three during 1927. The cooperation of the physicians is shown by the fact that the cases referred to the clinics by them have increased from 14 per cent in 1923 to 39 per cent in 1927.

[1] A copy of the standards of diagnosis and classification adopted by the Bureau of Tuberculosis for use in Cattaraugus County will be found in the Appendix, pp. 76-78.

The portable X-ray equipment of the Bureau of Tuberculosis has been utilized by many physicians. The films are developed by the bureau and interpretations are mailed to the physicians. Sometimes the films are loaned to the physicians, or made available for their inspection in the central office of the bureau.

The examination of contacts became a major activity of the Bureau of Tuberculosis in 1926. At the beginning of that year, the public health nurses were instructed to make every effort possible toward arranging for the examination, either by private physicians, school physicians, or clinic physicians, of (1) all contacts of cases known to have been active during the demonstration period, and (2) all contacts of patients who had died from tuberculosis during the past decade.

A survey at the beginning of 1925 revealed 701 contacts who were under twenty years of age. Of these, 541 were examined during 1926. Without doubt, many more were examined by their family physicians, but there are no accurate figures to verify this. There were, in addition, 144 contacts over twenty years of age examined by the clinicians of the County Department of Health, making a total of 685 contacts, all ages, examined during 1926.

The percentage of positive cases found in the contact group was about 5. Thirty-two per cent of all cases diagnosed tuberculous gave a history of tuberculosis in their immediate family. Twenty-five per cent of all persons examined were contacts.

With the beginning of the school year 1924-1925, arrangements were made with the County School Health Service to examine certain groups of school children: (a) children who were 10 per cent or more underweight for their age and height, according to accepted standards; (b) children who were habitual absentees; and (c) children who were reported by school

teachers and school nurses as having chronic symptoms or who were apparently below par physically.

In order to extend the service, in the beginning of the school year 1925-1926, arrangements were made to have the local school medical examiners of the various villages and towns refer children with suspicious chest findings to the diagnostic clinics.

Reports of these examinations are sent to the local school examiner, as well as to the director of the school health district. The follow-up work on suspicious cases of tuberculosis found in the schools is carried on by the public health nurses. This service has proved indispensable in determining diagnosis. Many "suspects" require weeks of home follow-up work, together with reexaminations, before a diagnosis can be made. Approximately 20 per cent of the entire time of the nursing service of the County Department of Health is allocated to school work.

In September, 1924, at the request of the director of the County School Health Service, the examination of school children who were more than 10 per cent underweight was begun. After the nurses of the Department of Health or local school nurses had weighed and measured the children in the schools, it was found that approximately 15 per cent, or about 2,500, were 10 per cent or more underweight. The plan was to examine the Olean children first and then those in the rural schools. During the school year 1924-1925, the work was completed in the high school and the grammar schools (parochial schools included) of Olean. In all, 736 grammar school children and 72 high school children were examined. Forty-nine cases of tuberculosis, all forms, including childhood type, were found. The number of clinically active cases found was eight, or about 1 per cent. These children were placed under treatment either in the county sanatorium or under private

physicians. A few others were admitted to the county sanatorium for observation, some were transferred to the open-air school, and the rest have been under the general supervision of the School Health Service. One hundred forty children attended the summer camp for a six-weeks' period in 1925 and the same number attended in 1926. Findings, other than tuberculosis, were noted and reported to the School Health Service.[2] The survey was continued during the school year 1925-1926, 331 children in seventeen rural schools being examined. All children in the rural schools who gave a history of contact or had suspicious symptoms were referred to the clinic for the tuberculin test and an X-ray examination.

The total number of underweight children examined in both urban and rural schools during the period was 1,139, or 45 per cent of the total estimated number. The number of cases of pulmonary tuberculosis was twelve, or 1 per cent. The number of bone and joint cases was five, or 0.4 per cent, and the number of childhood type was forty-two, or 3.6 per cent. The percentages found are almost identical with those found in the school work in Chautauqua, a neighboring county, where 1.45 per cent of 1,900 children examined were found to have pulmonary tuberculosis and four-tenths of 1 per cent, bone and joint tuberculosis.

Many underweights in the districts where no routine examinations were made in the schools have been examined at the regular diagnostic clinics. A review of the clinic records showed that 1,757, or 51 per cent of 3,440 cases under twenty years of age examined to July 1, 1926, were more than 10 per cent underweight. Most of the underweights examined, other than those examined in the schools, were referred to the clinics by public health nurses or school physicians, because of suspicion

[2]Douglass, Stephen A., M.D., A Report on the Examination of Underweight School Children in Olean, New York. Cattaraugus County Board of Health *Bulletin*, September, 1925.

of tuberculosis, or were brought to the clinics by their parents for the same reason. Many of them were also "contacts." Since this was a selected group, it was expected that the incidence of tuberculosis would be high. As a matter of fact, 114 of the 1,757 were diagnosed as tuberculous, either active or inactive.

The examination of underweight children has proved to be a very valuable phase of the tuberculosis program. Many of these children are potential cases of tuberculosis. By discovering them early and providing hot lunches and extra rest periods, together with home supervision through nursing service, in order to secure the correction of physical defects, the possibility of future breakdown is lessened.

At the same time, it should be emphasized that school children who are not underweight should also be examined for tuberculosis, regardless of whether they give a history of contact or not, as some of the cases discovered were up to their normal weight. It is, however, of especial interest to note that the percentage of tuberculosis found increased in direct proportion to the degree of underweight.

Nearly one-third of the children had no major physical defects. Thirty-one per cent of them had one major defect; 27 per cent had two; 9 per cent had three; and 2 per cent had four or more. The frequency was practically the same among boys as among girls, with the exception of enlargement of the thyroid gland. Thirty-seven girls and seven boys had enlarged thyroids.

In addition to the underweights examined, 272 children were examined in the school clinics, who were either in group 2 (habitual absentees) or in group 3 (children who were reported by school teachers and school nurses as being apparently below par physically), making the total number of children examined in school clinics 1,411.

The chief sources of clinic cases have been: (1) the public health nurses of the County Department of Health, (2) private physicians, (3) publicity, and (4) school health service. In addition, cases have come to the clinics from other sources, such as the Randolph Children's Home, Cattaraugus County Home, industrial plants, social service workers, Indian school supervisors or missionaries, Red Cross, voluntary health agencies, fraternal organizations, local Veterans' Bureau examiner, poormasters, and so forth.

As was to be expected, the chief source of clinic cases during the first year of the demonstration was the public health nurses, who are always the important factor in any case-finding campaign. Fifty per cent of all cases attending the clinics the first year were advised to do so by the public health nurses. The percentage was 40 in 1924, and 27 in 1925 and 1926. Publicity plays an important part in stimulating clinic attendance. In 1923, 18 per cent came to the clinics through publicity. The percentage increased the second year (1924) to 24 per cent. The attendance at the clinics early in 1925 became so heavy that the publicity campaign was curtailed somewhat, resulting in a decrease in clinic attendance from this source to 17 per cent in 1925 and 14 per cent in 1926.

During the first year, practically no cases were referred to the clinics by the local school medical examiners, most of the school children having reported to the clinics through publicity or through the public health nurses. As pointed out previously, the case-finding campaign among school children did not begin until in the fall of 1924, and reached its peak in the spring of 1925. Of the cases examined in 1924, 13 per cent were school children examined in the schools.

Again, emphasizing the role of the public health nurses in case-finding, is the fact that 34 per cent of all cases of tuberculosis found during the first four years of the demonstration

Source*	Percentage of Cases Referred to Clinics by Specified Source Each Year				
	Four Years	1923	1924	1925	1926
All cases	100	100	100	100	100
Public health nurses	34	50	40	27	27
Physicians	15	14	11	13	28
Publicity	19	18	24	17	14
School	20		13	35	14
Other	5		3	2	16
Not stated	7	18	9	6	1

*Exclusive of Indians and non-residents.

Table 1. Percentage distribution of cases of tuberculosis diagnosed in the clinics according to source through which they came for examination, 1923-1926.

were referred to the clinics by the public health nurses. The first year (1923), 59 per cent of positive cases were discovered by the public health nurses. The percentage was gradually reduced, as the field of suspects and contacts was covered, to 37 per cent in 1924, 24 per cent in 1925, and 22 per cent in 1926.

Publicity has been the means of discovering from 12 to 18 per cent of the cases each year. Through the School Health Service 2 to 15 per cent of positive cases have been discovered. The highest percentage of cases reached through this source was in 1925 when the intensive case-finding campaign among underweight school children was at its height.

All case-finding campaigns have demonstrated that after the initial effort, which always unearths numerous undiagnosed and unreported cases of tuberculosis, the practising physicians are the source from which most positive cases are derived. This has been definitely proved in Cattaraugus County, the percentage of positive cases referred to the Bureau of Tuberculosis increasing from 17 per cent in 1923 to 30 per cent in 1924, 37 per cent in 1925, and 55 per cent in 1926. No greater proof

Clinic Service and Results of Clinic Examinations	1923	1924	1925	1926	1927
Clinics held	19	144	174	142	123
Examinations made	511	2,988	3,102	1,819	1,311
First examinations	484	2,434	2,446	1,082	725
Reexaminations	27	554	656	737	586
X-rays taken	193	956	608	463	541
Results of examinations					
Positive tuberculous cases	47	278	258	158	106
Non-tuberculous cases	350	1,953	2,021	701	
Undiagnosed cases	87	203	167	223	

Table 2. Clinic service and classification of persons examined according to findings, 1923-1927.

is necessary to show the necessity of cooperation with the practising physicians.

All the other sources mentioned have referred an average of 12 per cent to the clinics, with an average of 7 per cent for positive cases.

A study of the source of clinic cases and positive tuberculosis cases is extremely interesting, inasmuch as it affords a fairly accurate appraisal of the work of the public health nurses, of the Bureau of Public Health Education in so far as it pertains to tuberculosis, and of the attitude of the practising physicians toward the clinic service.

A summary of the clinic service and the findings, by years, is presented in Table 2.

In the five-year period 1923-1927, a total of 7,171 persons were examined especially for tuberculosis, or approximately 10 per cent of the entire population of the County.

During the first three years of the work, clinic attendance was not limited, with the result that it was not unusual to have an attendance of from twenty-five to thirty. During 1926, the clinic schedule was placed on an appointment basis, the clinic

attendance being limited to twelve. Emphasis was placed on the examination of: (1) contacts of all known active cases, (2) contacts of patients who had died during the past ten years, (3) the large group of suspect cases on the records, and (4) those children who were markedly underweight.

When the tuberculosis program was initiated by the Bureau of Tuberculosis on January 1, 1923, there were 135 known cases of tuberculosis. On December 31, 1927, at the end of the first five-year period of the work, during which the intensive case-finding survey had been in progress, there were 636 known cases of tuberculosis in Cattaraugus County, of which 159 were active.

Tuberculosis patients are urged to avail themselves of the opportunity to undergo a period of institutional care in the county sanatorium.

The advantage of sanatorium treatment is based on the fact that the institution is constructed, equipped, and operated with reference to the management and treatment of the disease. There is an intimate association of physician and patient, a constant encouragement to do the things which will aid in recovery, a removal of the temptations to do the things which are harmful, a constant stimulation to "carry on" because of the association with those who are trying to overcome the same disease, an encouragement resulting from the improvement which is made by other patients, a removal of many sources of infection from the community, and a practical illustration and training in correct habits of living, which proves invaluable to the patient, not only in helping him to regain his health, but in assisting him to preserve it.

Rocky Crest Sanatorium, the county tuberculosis hospital, is located in a picturesque mountain district, five miles south of Olean at an elevation of 2,400 feet. In 1923 the institution had a capacity of thirty beds.

When the official tuberculosis program was organized by the County Department of Health it was recognized that existing sanatorium facilities were inadequate and further that such as had been provided were not being utilized to their fullest extent. This applied not only to lack of adequate bed capacity but also to lack of facilities for carrying on a program of instruction in personal hygiene and in the fundamentals of both treatment and prevention.

Administrative procedures and treatment facilities have been improved by the employment of a full-time medical director, by the introduction of occupational therapy and heliotherapy as adjuncts to the general régime, and by the establishment of a program of instruction in personal hygiene.

The facilities offered by the sanatorium have been extended to a larger number of patients requiring treatment by the addition of two wards for children, thus increasing the capacity of the institution from thirty to fifty beds. Hospital days have increased from 10,000 in 1922 to 16,804 in 1927, and annual admissions from 42 in 1923 to 103 in 1927.

Table 3. Classification of Rocky Crest Sanatorium patients according to type of tuberculosis, 1917-1926.

Year (Ending Oct. 31)	Number of New Cases Admitted	Total Cases Treated	Positive Tuberculosis				Suspected Tuberculosis	Non-Tuberculous
			Total	Pulmonary	Bone	Other Forms		
1917	39	53	53	50	3			
1918	43	55	55	55				
1919	33	53	51	49	1	1		2
1920	51	75	69	68	1		2	4
1921	49	73	73	71	2			
1922	53	79	74	68	6		4	1
1923	42	76	68	60	6	2	6	2
1924	83	120	109	92	11	6	6	5
1925	83	129	112	91	9	12	11	6
1926	79	123	113	102	8	3	7	3

Year (Ending Oct. 31)	(a) Stage of Pulmonary Tuberculosis Cases			
	All Stages	Minimal	Moderately Advanced	Far Advanced
1917	50	13	8	29
1918	55	16	18	21
1919	49	13	23	13
1920	68	13	25	30
1921	71	13	32	26
1922	68	7	30	31
1923	60	9	20	31
1924	92	20	41	31
1925	91	35	33	23
1926	102	30	36	36
	(b) Per Cent of Cases in Specified Stage			
1917	100.0	26.0	16.0	58.0
1918	100.0	29.1	32.7	38.2
1919	100.0	26.5	46.9	26.5
1920	100.0	19.1	36.8	44.1
1921	100.0	18.3	45.1	36.6
1922	100.0	10.3	44.1	45.6
1923	100.0	15.0	33.3	51.7
1924	100.0	21.7	44.6	33.7
1925	100.0	38.5	36.3	25.3
1926	100.0	29.4	35.3	35.3

Table 4. Classification of Rocky Crest Sanatorium patients who received care for pulmonary tuberculosis, according to the stage of the disease, 1917-1926.

In addition to the larger number of admissions, the turnover of patients was more than doubled. Discharge after a comparatively short stay was made possible in many instances by reason of the supervisory follow-up nursing service of the County Department of Health. Patients are now willing to undergo sanatorium treatment when there is a reasonable prospect that, after a comparatively brief period of treatment of from three to six months, they will be allowed to return to their homes, and particularly when they are assured that nursing supervision will be available in their homes. The

Year (Ending Oct. 31)	Total Under 16 Years	Pulmonary	Bone	Childhood Type	Adenitis	Other	Suspected
1917	1	1					
1918	1	1					
1919	4	4					
1920	5	5					
1921	6	4					2
1922	10	5	3				2
1923	15	5	3		1	1	5
1924	34	11	8	3	5	1	6
1925	42	17	8	8	4		5
1926	36	16	4	10	3		3

From the 1926 Annual Report of Rocky Crest Sanatorium.

Table 5. Number of children sixteen years of age and under who received sanatorium care classified according to type of tuberculosis, 1917-1926.

growth of sanatorium service and the improvement in the type of cases admitted from 1917 to 1926 are shown in Tables 3, 4, 5, and 6.

Many parents are unwilling to allow their children to enter a sanatorium unless assured that their education will not be neglected. To overcome this objection, and to further the usefulness of the sanatorium as an educational institution, an open-air classroom has been provided in one section of the recreation hall. The treatment schedule provides for two hours of school work. Steps were taken by the educational authorities to create a school district at the sanatorium which would provide accredited teaching facilities. In October, 1927, a teacher was appointed by school authorities.

The 1925-1926 annual report of the superintendent of the county sanatorium makes the following significant statement:

> Since 1923, when Cattaraugus County was designated as a demonstration area by the Trustees of the Milbank Memorial Fund, the sanatorium has benefitted by its asso-

ciation with the County Department of Health. Their case-finding campaign has brought to light many untreated cases of tuberculosis, which were proved sources of infection to their families, and the follow-up work conducted by the Department has been of inestimable benefit to the patients and to the Institution as well.

It is the function of the Bureau of Tuberculosis, in so far as possible, to provide supervision for all cases of tuberculosis. All patients diagnosed in the clinics as active cases are urged to avail themselves of sanatorium treatment until their disease becomes arrested, or at least for a sufficient length of time to become fully acquainted with sanatorium régime. There is, however, a certain percentage of patients who are either unwilling or unable to avail themselves of sanatorium treatment. A large proportion of this group comes under the supervision of the nursing service of the County Department of Health, which carries out the instructions of the attending physician and insists on the details of home-treatment standards.

The results of the case-finding campaign were so fruitful

Table 6. Number of children sixteen years of age and under who received sanatorium care classified according to stage of pulmonary tuberculosis, 1917-1926.

Year (Ending Oct. 31)	Total Under 16 Years	Total Pulmonary	Minimal	Moderately Advanced	Far Advanced
1917	1	1	1		
1918	1	1	1		
1919	4	4	2	2	
1920	5	5	3	2	
1921	6	4	3	1	
1922	10	5	1	2	2
1923	15	5	2		3
1924	34	11	7	2	2
1925	42	17	14	2	1
1926	36	16	11	4	1

From the 1926 Annual Report of Rocky Crest Sanatorium.

that it early became apparent that the sanatorium, with its limited bed capacity, could not be expected to give treatment to all cases which were being constantly located. While the sanatorium during 1924 had increased its bed capacity by fifteen, or a ratio in excess of one bed to each annual death, had adopted an educational policy, and had increased its admissions 100 per cent, the waiting list became so long that it was found necessary, in so far as it was possible, to inaugurate a modified form of sanatorium-home treatment[3] which would be applicable in the patient's home. This became effective in 1925, and was first limited to a select group who had had a short period of sanatorium treatment and who had agreed to cooperate with their physician and the district nurse.

The results of this procedure were so successful that the "class" was gradually increased to accommodate practically all active cases where the home conditions were satisfactory and the patient cooperative, even though the patient was not able or willing to receive a short period of sanatorium training.

For this group the term "home-treatment" is applied in contradistinction to the term "sanatorium-home" treatment. The regimen carried on in these cases is identical. All other active cases are placed under what is termed "home-supervision," because of the fact that conditions will not allow of the application of the requirements and specifications of the sanatorium-home treatment plan.

The nurses are carefully instructed in regard to the standards to be followed, covering hygiene and social conditions, medical supervision, and nursing care of the cases undergoing supervision and treatment at home, and are furnished a manual published by the County Health Department outlining all the detail of the sanatorium-home treatment standards.

[3]Pattison, H. A., A Sanatorium-Home Treatment Program for Tuberculosis Patients. *American Review of Tuberculosis*, June, 1922, vi, No. 4.

Health District	Total Number of Cases	Group 1 Active Cases in Stage 1 or 2 Under Home Treatment After 3 or More Months in Sanatorium	Group 2 Active Cases in Stage 1 or 2 Under Home Treatment With No Sanatorium Experience	Group 3 All Other Cases Under Home Supervision. Less Co-operation or Unsatisfactory Conditions	In Sanatoria
Total	550	40	195	259	56
Olean City	188	10	60	91	27
Olean, rural	66	1	26	37	2
Salamanca	74	5	23	40	6
Ellicottville	40	6	16	10	8
Cattaraugus	75	9	26	36	4
Randolph	41	4	20	14	3
Franklinville	66	5	24	31	6

Table 7. Classification of cases of tuberculosis, exclusive of Indians, in each supervisory health district under supervision of the Bureau of Tuberculosis according to the type of treatment or supervision being received as of September, 1926.

This work is carefully supervised by the director of the bureau and by the supervising tuberculosis nurse, who adopted the following modifications of the standards in regard to visiting and examination, the frequency of the visit, and examination being determined by the condition of the patient:

1. All active cases to be visited weekly and examined each month.
2. Quiescent cases visited each month and examined each month.
3. Apparently arrested cases visited each month and examined every two months until they become arrested cases.
4. Arrested cases visited every three months and examined every six months.

Active positive cases of tuberculosis are reclassified every three months after a study of constitutional symptoms corre-

lated with physical findings and X-ray. Reclassification at more frequent intervals, although desirable, is impossible because of the number of cases under treatment and because of the distance to be traveled by the nurses in making the necessary home visits. By far the greater number of tuberculosis patients in Cattaraugus County are under the care and treatment of private physicians.

The results of the application of the home-sanatorium standards of treatment are far-reaching and have been an interesting and successful phase of the work of the demonstration. Many patients have had instruction and supervision who, because of prejudice, would have refused sanatorium treatment had it been available.

The application of the plan has carried into the homes of the patients those essentials which are necessary for the treatment of the disease and for the protection of the contacts. Many who were diagnosed as active have attained an arrest of their disease and a restoration to a working capacity, while remaining under supervision. The plan has demonstrated its value as an effective and economical method in dealing with tuberculosis in the home, allowing as it does a prolonged supervisory con-

Table 8. Classification of cases of tuberculosis as to supervision and activity of cases under home treatment, as of December 31, 1926.

Supervision and Activity of Cases	Number of Cases	Per Cent of Total Home Cases
Total cases under home supervision	504	100
Supervision of cases:		
Cooperative cases, effectively supervised	264	52
Under care of physician, nurse not visiting	56	11
Non-cooperative cases, or unsatisfactory home conditions	184	37
Activity of home cases:		
Active or quiescent	101	20
Apparently arrested or arrested	356	71
Undetermined	47	9

Districts	Total	At Time of Diagnosis		Present Classification	
		Active	Arrested	Active	Arrested
Total	550	395	155	193	357
Cattaraugus	75	58	17	20	55
Ellicottville	40	30	10	16	24
Franklinville	66	40	26	18	48
Olean City	188	142	46	74	114
Olean, rural	66	49	17	22	44
Randolph	41	22	19	12	29
Salamanca	74	54	20	31	43

Exclusive of Indians.

Table 9. Classification of cases of tuberculosis under treatment or supervision, according to activity at time of diagnosis and on September 30, 1926, for each health district in the County.

tact, which is essential to maintain an arrest of the disease and a restoration to working capacity.

By far the greater number of tuberculous patients are arrested and are working, needing only advisory follow-up supervision, and are carried in group 3. Each patient undergoing home treatment is given a copy of "Routine Schedule for Ambulant Patients," which is intended for their guidance. They are instructed by the public health nurses that any deviation from this schedule should be only on the advice of their family physician, and in the case of indigent patients having no family physician, on the advice of the clinician of the Bureau of Tuberculosis.

As stated above, active cases are advised to avail themselves of immediate sanatorium treatment. Where this is not possible or practicable, they come under the close supervision of the nursing service of the County Department of Health. Likewise, all tuberculosis patients discharged from sanatoria are placed under the nurses' supervision, the only exceptions being

District	All Forms	Pulmonary	Childhood Type	Adenitis	Osteomyelitis	Peritonitis	Genito-urinary
Cattaraugus	75	63	2	3	7		
Ellicottville	40	36	2		2		
Franklinville	67	63		1	3		
Olean City	186	163	5	10	7		1
Olean, rural	71	63	7	1			
Randolph	47	39	3	1	3	1	
Salamanca	71	60	1	2	8		
Total, exclusive of Indians	557	487	20	18	30	1	1
Indians	39	25	7	6	1		
Grand Total	596	512	27	24	31	1	1

Table 10. Classification of known cases of tuberculosis, by form, in each health district of Cattaraugus County, December 31, 1926.

those who refuse supervision by the nurses, or whose private physicians do not wish them supervised.

For the purpose of making the plan of home treatment and supervision practical, patients have been grouped into three classes as follows:

1. A sanatorium-home treatment group which included all patients with active cases of tuberculosis in the first and second stages of the disease, who had had at least three months of treatment and education in a sanatorium, and who had agreed to cooperate with their physician and the district nurse, and whose home conditions were satisfactory.

2. A home-treatment group which included all patients with active cases in the first and second stages of the disease who had agreed to cooperate with their physician and the district nurse, and whose home conditions were satisfactory, but who did not have preliminary sanatorium treatment and education.

3. All other cases were placed under what is termed "home-supervision," because of the fact that conditions

District	Stage				
	Total	I	II	III	Undetermined
Cattaraugus	63	26	33	4	
Ellicottville	36	17	16	3	
Franklinville	63	29	33		1
Olean City	163	73	70	17	3
Olean, rural	63	23	38	1	1
Randolph	39	15	22	2	
Salamanca	60	19	35	2	4
Total, exclusive of Indians	487	202	247	29	9
Indians	25	13	9	3	
Grand Total	512	215	256	32	9

Table 11. Classification of known cases of pulmonary tuberculosis, by stage, in each health district of Cattaraugus County, December 31, 1926.

will not allow the application of the requirements and specifications of the two other groups.[4]

Only a comparatively few patients are placed in group 1, there never having been more than forty at one time. It is with this group that the best results have been secured.

The number of patients in group 2, during the past two years, has averaged about two hundred. The results obtained by careful home supervision of this group are quite comparable with the results obtained in group 1. The supervision of cases in group 3 varies considerably, inasmuch as the group is made up of a number of advanced, active cases with hopeless prognosis; a few so-called "incorrigibles"; many with unsatisfactory home conditions; and a large number of arrested cases who require very little supervision. Table 7 shows the classification of cases of tuberculosis under supervision or treatment, by groups, September, 1926.

[4]Couse, E. C., Social Pathology of Tuberculous and Non-Tuberculous Cases. *The Nation's Health*, December 15, 1927, x, No. 12.

About 50 per cent of the known cases are under strict supervision of the director of the Bureau of Tuberculosis. In about 10 per cent of the cases, permission to supervise is refused by the family physician. Tables 8 and 9 give the classification of cases under home supervision or treatment, December 31, 1926, by type of care and activity.

Of the 550 cases known to the Bureau of Tuberculosis on September 30, 1926, the number in each health district classified as active or arrested is given in Table 9. The activity of these cases when first diagnosed is also shown in Table 9. The classification at the time of diagnosis is based on all available data after a period of study of symptoms according to accepted standards. In some cases where there was a definite history of discharge from a sanatorium, with a diagnosis of an arrested process, the case was classified as arrested without further study. In a few cases where there were definite signs of an inactive process and a definite history of symptoms in years past, but because of refusal on the part of the patient to return to the clinic or to accept follow-up supervision, a diagnosis of arrested tuberculosis was made. In Tables 10 and 11 the classification of all cases in the various districts by type and of pulmonary cases by stage is shown as of December 31, 1926.

The number of nursing visits in the interest of tuberculous patients has increased from 1,003 in 1923 to 3,799 in 1926. In 1926, there were also 2,984 nursing visits made to "contacts" and "suspects." The average number of visits to the arrested group was two per patient, while the average number of visits to the active group was twenty per patient. For the past year, about 25 per cent of the time of fifteen field nurses has been devoted to tuberculosis work, or the equivalent of over three full-time nurses.

IV

CONTRIBUTIONS OF AUXILIARY SERVICES

IT IS apparent from what has already been said that the Bureau of Public Health Nursing of the County Department of Health has been an important and indispensable factor in the program for the control of tuberculosis in Cattaraugus County. As has been stated, the public health nursing service operates on a generalized basis; in other words, each public health nurse is engaged in a variety of activities, tuberculosis nursing being only one phase of her program of community nursing service.

Tuberculosis Nursing in a Generalized Service[1]

There is no field in which the public health nurse renders a more essential service than in the field of tuberculosis. Tuberculosis nursing calls for the coordination of all other nursing and health services, and not only must the nurse be familiar with the care of the tuberculous patient and conscious of her responsibility for the protection of the patient's family, but she must constantly be on the alert to recognize symptoms of incipient disease and do her utmost to prevent the spread of infection. Because of her many contacts, the public health nurse has an unusual opportunity to serve in the campaign to control tuberculosis. Her work includes the education, care, and supervision of home patients, which is made possible by her regular and periodic contact during their prolonged and oftentimes monotonous struggle with disease. Tuberculosis nursing, largely because it is the oldest of the specialized services, has acquired a distinct technique of its own. The nurse doing generalized work must keep her standards as high as

[1]Gamble, Laura A., The Nursing Service of the Cattaraugus County Department of Health, 1927.

those of the specialized nurse, and must try to see her problem in such perspective that she will not overlook any of the essentials of a specialized service.

Prior to the organization of the County Department of Health, in 1923, there were, as stated earlier, only two nurses in the County doing tuberculosis nursing; one, maintained by the Olean Anti-Tuberculosis Society; the other, employed by the County. The county nurse later became a member of the staff of the County Department of Health, and the nurse employed in Olean came under the direct supervision of the special supervisor in tuberculosis nursing of the County Department of Health.

The program in tuberculosis control which was planned for the nursing service may be summarized as follows: first, discovery of new cases, contacts, and suspicious cases; second, assisting with arrangements for diagnosis and treatment; third, prevention of the spread of infection; fourth, care by instruction or nursing service to patients who remain at home; and, fifth, cooperation with other agencies for the welfare of the patient and the protection of the community. This service was furnished by allocating a definite amount of the time of the nurses stationed in the six districts and by the nurse employed by the Olean Anti-Tuberculosis Society. The special supervising nurse in tuberculosis devotes full time to the tuberculosis nursing, working with the staff nurses in their districts, occasionally visiting patients supervised by the district nurses, and helping with the problems encountered in connection with their tuberculosis work. Social problems in the homes of tuberculosis patients are referred to her, and with the assistance of the county social service department are adjusted by her, thus avoiding the necessity of additional visiting by another worker, a procedure often hindering the maintenance of the patients' cooperation.

The part that the public health nurses in Cattaraugus County played in the intensive case-finding survey begun in 1923 has already been partially described, but it is valuable here to consider in greater detail the whole tuberculosis nursing program.

After listing the names of the 135 known cases on record at the beginning of the survey, the nurses visited the physicians and local health officers to secure their cooperation, to get permission to visit the cases and their contacts, and to urge them to come to the clinic or to go to their physicians for examination. Then the homes of these patients were visited systematically, and appointments were made for examination. Many of these visits opened the way for visits to neighboring homes where suspicious cases were found. When patients attended the clinics, through publicity or because they were sent by their physicians, they were routinely followed up by home visits made by the nurses. These home visits proved an excellent means of locating other cases.

With the opening of schools and the beginning of a school nursing program, the nurses gained an entrance to practically all the homes of the County. Many of these school visits furnished direct clues in their search for new cases of tuberculosis. For example, a nurse, visiting in the home of a school child who needed glasses, discovered another member of the family ill in bed. No doctor had seen the patient, but the nurse became suspicious as to the cause of her illness. The family of eleven was living in a small five-room shack which was dark, close, and "cluttered." When the physician came he diagnosed the case as one of far-advanced tuberculosis, and because of the many contacts and poor home conditions recommended that the patient be removed to the sanatorium. This was done and the little shack thoroughly scrubbed and cleaned. Eventually all the contacts were examined at the clinics and two of

them showed definite signs of tuberculosis. This family is learning something about tuberculosis and is cooperating fully with the physician and the nurse in the effort to help them resist the disease. There have been many instances where the problem necessitating the nurse's visit was not primarily that of tuberculosis but one where tuberculosis was found.

When it became apparent that the sanatorium, with its limited bed capacity, could not give treatment to all the cases which were being found, it was found necessary early in 1925 to inaugurate the modified form of "sanatorium-home treatment," applicable in the homes of the average patient, and described in Section III of this report.

In this sanatorium-home treatment plan the public health nurses participated actively. Their part in this work and the schedule of their home visits to the various classes of tuberculous patients has already been briefly told. As a matter of general routine the Bureau of Tuberculosis notified the nurses of each new registered case of tuberculosis in their districts. Before the first visit was made, the physician in charge of the case was consulted by the nurse in order to obtain his consent and cooperation for home supervision. When the patient was diagnosed at the clinic and had no family physician, home supervision was established under direction of the clinician, and every effort was made to have the patient consult a local physician for subsequent examinations and medical advice.

The immediate object of every first home visit is to gain the confidence of the patient and of the family, for on this depends largely the success of all subsequent visiting in that home. With this confidence once established, the nurse's opportunities for teaching are limited only by her knowledge and skill. It is important for her to remember the value of demonstration and of using home facilities as teaching devices. It is not enough to tell the patient or others in the household

to be careful, but when the nurse actually demonstrates what precautions are to be taken her teaching is made much more effective. In tuberculosis visiting every detail must be explained, for the uninstructed family is not able to differentiate between the importance of the various instructions given. Nothing should be left to chance or to the intelligence of the family.

Special emphasis is necessary to the best arrangement of the patient's room or porch; the necessity for regular hours of rest in the open air or well-ventilated room; the routine use of sputum cups and paper handkerchiefs; the safe disposal of sputum; the care of dishes, bedding, and clothing; the importance of a good diet; and the forming of proper health habits. The patient is taught to take and record temperature; to control cough; to observe constitutional symptoms such as loss of weight, night sweats, hoarseness, pain, and loss of appetite; and to have regular medical examinations. It is not wise to attempt to teach the family all of this on the first visit, and it is very important to remember that advice must be repeated frequently. Every visit offers an unequalled opportunity to interpret the principles of prevention of the spread of infection and to inculcate in the patient and members of the family a proper attitude toward the disease.

When bedside nursing care is needed in the home, the nurses either provide this service or carefully instruct some member of the household how to give it. Obviously, the success of home visiting depends first upon the intelligence and full cooperation of the patient, and, secondly, upon the tact and judgment of the nurse, together with the addition of a proper home environment for the patient. Under these conditions favorable results have been accomplished even in some of the humblest homes of the County. On the other hand, the indifferent and sometimes incorrigible patient presents a

very serious problem and one with which oftentimes very little can be done. However, home supervision is always attempted and is continued in so far as possible.

Home supervision by the public health nurses is available for all the tuberculous patients in the County, not only for the indigent cases. The nurses visit in all classes of homes where the same type of service is rendered.

Approximately 25 per cent of the active cases in the rural districts live in homes which are isolated and off the main highways. During the winter months, because of the practically impassable roads, it is difficult to maintain a continuous service, but when roads and weather permit the cases are visited regularly, and every effort is made to furnish regular home supervisory service.

Periodic medical examination is urged for all who have been exposed to infection, especially children and young adults. All known contacts under twenty-one years of age are kept under supervision and urged to have an examination at least every six months. Contacts over twenty years of age who are in poor physical condition are supervised in the same way. Children are given special attention, every effort being made to secure the correction of their defects and to build up their resistance to disease.

With the assistance of the nutrition supervisor of the Bureau of Public Health Nursing, the nurses have organized health clubs and classes of underweight children for supervision and instruction in nutrition. In one district the class was made up of the mothers of underweight children who were given instruction in the selection and preparation of the proper food for their families. These classes, together with the teaching of health habits in the schools and the study of nutrition by groups of women organized under the auspices of the Home Bureau, have done much to lessen the number of cases of

malnutrition which were found to be so numerous among the children of the County.

The nurses assist in selecting the one hundred fifty children sent each summer to the camp conducted by the County Tuberculosis and Public Health Association in the Allegany State Park, and preference is given to contacts and to those who are underweight. Every effort is made to have defects corrected prior to admission to the camp. In camp, the children are taught healthful living habits, especially in regard to diet, sunlight and fresh air.

As already explained, when a patient has come to the clinic for examination and a diagnosis has not been made, the case is classified as "undiagnosed" or "undetermined," and these cases are instructed to return to the clinic for reexamination in three months unless an earlier date is recommended. The nurses visit them to secure temperature records, observe symptoms, and to make a detailed report of their observations to the clinician. It is difficult to persuade some of these patients to return for examination, particularly if they have to come from a distance, and repeated visits by the nurses over quite a long period of time are often necessary.

At first a good deal of time was given by the nurses to securing a good attendance at the diagnostic clinics, conducted every month by the Bureau of Tuberculosis in each of the health district stations, but this has gradually changed, and now the great majority of patients come as the result of publicity or because they have been sent by a physician. The nurses continue to refer contacts and persons whom they suspect of being tuberculous and who have no family physician. Appointments for examinations are scheduled so that there is sufficient time for the clinician and nurse to interview each patient and to use this opportunity of instructing the patient. The nurses are responsible for the routine clinic procedure and

for the follow-up home visits which are made on the recommendation of the clinician and with the permission of the family physician.

While patients frequently respond to home care, sanatorium care is always recommended, as it provides the best and surest teaching method. The nurses find that while a certain percentage of patients who have had sanatorium care do not follow instructions when they return to their homes, in most cases home supervision is most successful where treatment habits have been taught in the sanatorium and then continued in the home. Whenever it can be arranged, patients are urged to take sanatorium treatment, even if only for a comparatively short period.

When a patient is to be admitted to the sanatorium, a report on home conditions, financial resources, and cooperation of the patient is forwarded to the sanatorium by the nurse in the district. When a patient is discharged, the medical director of the sanatorium gives a report covering:

1. Condition on discharge (temperature, pulse, sputum analysis, and physical findings).
2. Complications during sanatorium residence.
3. Amount of exercise patient was taking on discharge.
4. Patient's attitude toward treatment.
5. Patient's attitude toward continuing treatment which might prove useful to the nurse in her home supervision.

All reports to and from the sanatorium are sent to the special supervisor of tuberculosis nursing, who forwards them to the nurses in the districts or to the medical director of the sanatorium as the case may be. She also visits the sanatorium once a month to interview patients and to assist in arranging with available agencies for any necessary social and economic adjustment which should be made before they are discharged from the sanatorium to continue treatment in their homes.

The supervision of tuberculosis cases, as a rule, is by no

means simple. In so many instances, social problems are so interwoven with the health problem that an attempt to deal with one means encountering both. Whether or not the public health nurse shall be the one to deal with the social problems has been a subject of much controversy. Few public health nurses have had the training or experience to fit them for this type of service and they hesitate to assume responsibility for it. However, in many rural communities where workers are scarce and where the network of organizations usually found in urban centers is lacking, the nurse not infrequently finds herself the one upon whom the people depend for help in all kinds of problems. This is especially true with regard to her tuberculous patients.

The County Department of Health has adopted the policy of having the nurses refer all social problems encountered in their tuberculosis nursing to the special supervisor, who in conference with the social workers assumes the responsibility for the disposition of the case. Only a beginning has been made toward the solution of this difficult problem and much remains to be done in the development of this phase of the work. The experience in Cattaraugus County would indicate that much of the social work in the rural communities must be done by the public health nurses.

A summary of the work of the public health nursing service in Cattaraugus County shows that a grand total of 41,483 nursing visits for various health purposes, including 84 per 1,000 population for the care and supervision of tuberculosis cases, were made by the nineteen nurses on the staff of the County Department of Health during 1927, and by the nine nurses employed by other local agencies. Table 12, in which the public health nursing visits for 1927 are described in detail, will give a picture of the nature and scope of the work of the generalized nursing service.

	Total Number of Visits	
Cattaraugus County Health Department (15 staff nurses, 3 supervisors, 1 director)		27,955
Tuberculosis visits to diagnosed cases	2,000	
Visits to tuberculosis suspects and contacts	2,231	
Visits to school children	3,472	
Maternity visits	2,819	
Infant visits	4,740	
Preschool children visits	4,302	
Communicable disease visits	1,022	
Other visits to patients	2,911	
Olean Health Department (2 nurses)		3,090
Maternity and infant visits	1,684	
Communicable disease visits	1,406	
Boards of Education in two cities (2 nurses)		2,090*
Olean Anti-Tuberculosis Society (1 full-time tuberculosis nurse)		2,023
Local nursing associations (3 nurses)		4,260
State Health Department (1 Indian Reservation nurse)		2,063
Total nursing visits in County during 1927		41,483
Total visits per 1,000 population per annum		560
Tuberculosis visits per 1,000 population per annum		84

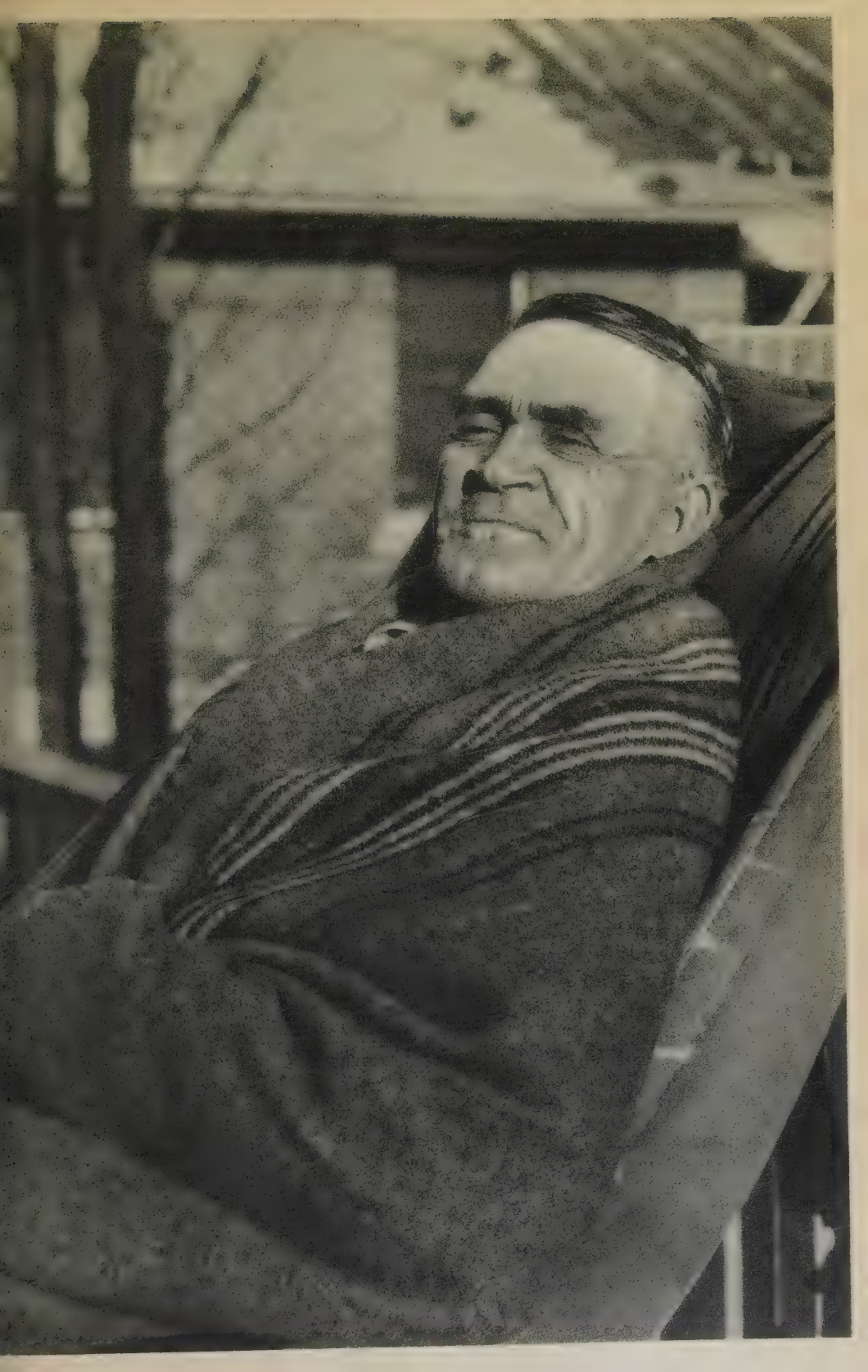
*Partially estimated.

Table 12. Summary of the public health nursing service, including tuberculosis nursing service, rendered by all the agencies in Cattaraugus County, 1927.

The Diagnostic Laboratory[2]

Valuable service has been rendered to the Bureau of Tuberculosis by the county diagnostic laboratory which is also a bureau of the County Department of Health. Prior to the organization of the County Board of Health, laboratory facilities were not available in the County except in the city of Olean and in the several hospitals. Early in 1923, when the small city health department laboratory in Olean was converted into a county laboratory, and placed under the direc-

[2]Baldwin, E. R., The Absolute and Relative Value of Laboratory Procedures in the Diagnosis of Tuberculosis—De Lamar Lectures, 1925-1926.



tion of a full-time medical director, the service was developed so that laboratory facilities were placed at the disposal of all the physicians of the County. This service includes the routine examination of sputum for tubercle bacilli and the supplying of tuberculin for diagnostic purposes. No biophysical or biochemical investigations in tuberculosis have been undertaken.[3]

The annual number of sputum samples submitted and the number of positive specimens reported by the laboratory, 1923-1928 inclusive, were as follows: in 1923 there were 130 sputum samples submitted, of which 58 were reported to be positive specimens; in 1924 there were 461 submitted, of which 119 were positive; in 1925, of 351 examinations, 80 were positive; in 1926, out of 434 samples submitted, 97 were positive; and in 1927 the number of positive specimens discovered in 456 examinations was 109.

Health Education Service

Health education in Cattaraugus County has been carried on by the executive secretary of the County Tuberculosis and Public Health Association and by the Bureau of Health Education of the County Department of Health. The educational program has been conducted through newspaper publicity, through the distribution of pamphlets, leaflets, and similar printed material, together with popular health instruction conveyed by means of lectures, moving pictures, and exhibits. The educational program has, in the main, however, been directed toward instruction of the public by word of mouth. Lectures, moving picture entertainments, and similar presentations have been carried into every corner of the County, the

[3]Baldwin, E. R., Petroff, S. A., and Gardner, L., Tuberculosis Bacteriology, Pathology and Laboratory Diagnosis. Philadelphia, Lea and Febiger, 1927.

work of the County Health Department being interpreted in this way to a large section of the population. The professional staff of the Health Department has been constantly before the public for the purpose of explaining the various phases of health activity in the County; and this has, it is felt, not only gained friends for the health program, but served to emphasize to each bureau chief his part in the larger aspects of health education.

Not the least of the health educational projects has been the technical instruction that has been given to Cattaraugus County physicians, including in this the course in the Trudeau School of Tuberculosis, which was attended by five physicians from the County, and the issuing to physicians of a monthly bulletin on various phases of tuberculosis. During the spring of 1924, a course for health officers was conducted by the State Department of Health in cooperation with the County Health Department. This course covered a period of twelve weeks, two days of each week being spent in a series of lectures and practical discussions on the essentials of public health practice.

The Bureau of Public Health Education, in addition to special propaganda in conjunction with the Bureau of Tuberculosis, has cooperated with the School Health Service, the Bureau of Maternal, Infant, and Child Hygiene, and the public health nurses, emphasizing the following measures as a part of the general educational campaign against tuberculosis:

1. General community control over milk supplies, and especially the promotion of milk pasteurization. The public must constantly be reconvinced of the importance of this procedure, especially to prevent the spread of tuberculosis caused by the bovine bacillus.
2. Education of prospective mothers in prenatal care.
3. Education of mothers in the importance of breast

feeding for infants and in the value of proper food, rest, and sleep for older children.

4. Education of parents in the necessity of early correction of defects in children and the application of such measures as are necessary to maintain a good state of health.

5. Stimulating interest in playgrounds, summer camps, fresh air, and sunshine.

6. Education of the people generally, and especially mothers, in the fundamentals of nutrition.

7. Education aimed at improving housing conditions.

8. Education aimed at improving industrial conditions.

9. Education in the schools aimed at developing in the individual child the sense of responsibility for the protection and promotion of his own health.

During 1926, twenty-four bulletins were issued to physicians of the County covering various phases of the diagnosis and treatment of tuberculosis, and in 1927 an additional twelve were issued.[4]

Measures to Control Bovine Tuberculosis

In January, 1923, the Cattaraugus County Board of Supervisors appropriated $6,000 for the use of the County Farm Bureau for the eradication of bovine tuberculosis. In granting the appropriation, the Board recommended that the appropriation should be used in accordance with the plans approved by the County Board of Health.

With the assistance of the Milbank Memorial Fund a special advisory committee on bovine tuberculosis was appointed, consisting of Dr. Theobald Smith, division of animal pathology, Rockefeller Institute of Medical Research, Princeton, New Jersey; Dr. William H. Park, director of laboratories, New York City Department of Health; and Professor Veranus A. Moore, dean of the State College of Veterinary

[4] A list of the topics discussed in these bulletins will be found in the Appendix, pp. 79, 80.

Medicine, Cornell University, Ithaca, New York. Professor Moore, acting for this committee, held a preliminary meeting in Salamanca in April, with representatives of the County Board of Supervisors, the County Board of Health, the County Farm Bureau, and other interested agencies. One thousand dollars was appropriated by the Milbank Memorial Fund to carry on educational work in connection with the effort to eradicate bovine tuberculosis from the 80,000 cattle in Cattaraugus County. An additional thousand dollars was granted by the Milbank Fund in 1924 to aid in continuing the work. The Cattaraugus County Board of Supervisors also increased its original appropriation to a total sum of $14,000.

The advisory committee recommended a county-wide tuberculin testing campaign. The federal and state authorities agreed to cooperate and pay indemnities on reacting cattle condemned by them, the State of New York allocating $180,000 for this purpose. The campaign was begun in August and was carried on intensively by local veterinarians assisted by veterinarians furnished by the federal and state governments. Subsequently, the testing was carried on by the local men alone. A report made in December, 1925, shows that the cattle in 3,924 herds had been tested. The project continued, until in 1927 infection was reduced to approximately 0.5 per cent.

An effort was made by the County Farm Bureau to induce all owners of infected premises to properly clean and disinfect premises after infected cattle had been removed. Information has been furnished to owners of accredited herds as to the measures necessary for preventing reinfection, and instruction has been given in the methods of disinfection. Milk companies have been interested and have taken action in their respective territories. Individual dairymen have been visited and their work passed upon.

A large percentage of all tuberculous cattle in the County have been removed. Table 13 is a condensed report showing the results of the eradication campaign for the period from 1920 to 1926.

By the end of 1927, of the 5,458 herds in Cattaraugus County at that time, 3,761 herds were accredited. In other words, they had been tested and retested without any reaction and pronounced free from infection. Herds that had passed only one test by the end of 1927 numbered 1,340. The last test in that same year showed that there were only 347 herds that contained any tuberculous cattle.[5]

The preliminary tuberculin testing survey carried on in 1923 brought out the fact that 10.3 per cent of the cattle tested were "reactors." This conformed to the condition in many localities throughout the County.

In view of the fact that bovine tuberculosis is prevalent in the cattle of many communities and that food products from the cattle, such as milk, make up a large proportion of the food of the population, it is important that control measures be constantly enforced, and that continuous effort be made to eradicate the disease.

Table 13. Results of the bovine tuberculosis surveys made by the Cattaraugus County Farm Bureau in cooperation with the Cattaraugus County Board of Supervisors, 1920-1926.

Years of Campaign	Cattle Tested	Reactors	Per Cent Showing Infection
1920-1923*	17,000	2,210	13.0
1923	65,206	5,059	7.7
1924	71,003	3,536	4.9
November 1, 1924, to September 15, 1925	25,483	646	2.53
1926	77,259	695	0.9

Promiscuous testing under the fee system.

[5]Nelbach, George J., The Organization of Tuberculosis in Rural Districts, p. 10. (Presented at the Int'l Tuberculosis Union, Rome, Italy, Sept. 28, 1928.)

The dangerously tuberculous cow may long retain the appearance and general semblance of perfect health. Such cows need not be visibly diseased in order to expel tubercle bacilli from their bodies. Failure to obtain direct evidence that a tuberculous cow is dangerous does not prove that the tuberculous cow is safe. The tuberculin test is the only accurate way of determining whether or not a cow is dangerous. This emphasizes the importance of periodic application of the tuberculin test to all dairy cattle, and the segregation of all reacting animals. Tuberculosis among cattle, therefore, must be vigorously fought until bovine tuberculosis is controlled; and, until this is possible, pasteurization of the milk supply must be employed.

Dr. John R. Mohler, chief of the United States Bureau of Animal Industry, in an address before the New Jersey Veterinary Medical Association in June, 1927, makes the following statement:

> In spite of fears expressed ten years ago when the campaign of tuberculin testing was first inaugurated that it would cause a repulsion to dairy products and that the destruction of diseased cows would bring on a meat shortage, the dairy and meat industries have prospered as never before. Although ten million of the thirty million cattle tested have been destroyed, the dairy industry is in better condition than it was ten years ago. The percentage of tuberculous cattle in the country has been decreased from 4 in 1924 to 2.8 at the present time.

Human tuberculosis with bovine infection is of importance chiefly among children. It is the source of about one-sixth of all tuberculosis that develops into clinical and manifest disease among children between five and sixteen years of age, and of more than one-fourth of such disease among children under five years.

Dr. William H. Park states:

> The glandular and the disseminated tuberculosis of infants in places where ordinary raw cow's milk is used is frequentl ydue to the bovine type of infection, and the proportion due to it is dependent upon the amount of tubercle bacilli in raw cow's milk.[6]

Wang[7] has pointed out that in children fed on raw cow's milk the incidence of tuberculous infection as revealed by the tuberculin test is much higher than in children fed on boiled cow's milk. Griffith of Cambridge found that 20 per cent of 1,068 cases of tuberculosis were due to the bovine bacillus. Frazier and Stiles of Edinburgh found bovine infection in 62 per cent of patients with bone and joint tuberculosis. Chesley of Minnesota found that bovine infection was responsible for 23.8 per cent of generalized tuberculosis, 40 per cent of cervical gland tuberculosis, and 49 per cent of abdominal tuberculosis. Lochead has estimated that 10 per cent of the deaths from non-pulmonary forms of tuberculosis could be attributed to the bovine tubercle bacillus.

Among 3,000 children in Cattaraugus County under sixteen, examined by the clinic service of the Bureau of Tuberculosis during the past three years, a diagnosis of infection, where bovine bacilli may have been the cause, was made in forty-five cases, or 1.5 per cent. In addition, six cases have been reported by physicians to the State Department of Health.

The fact that bovine infection among cattle in the County has been limited to less than 1 per cent, in all probability, should have a decided influence on the incidence of bovine infection among children.

[6]Park, William H., M.D., Survey of the Broad Phases of Tuberculosis. *American Review of Tuberculosis*, February, 1927, xv, No. 2.

[7]Wang, C. Y., Incidence of Bovine Infection in Children. *Edinburgh Medical Journal*, 1917, xviii, 178.

V

SOME OBSERVATIONS CONCERNING THE PRESENT STATUS OF THE TUBERCULOSIS SERVICE

IT IS too soon to discuss with finality the effects of the program of the Cattaraugus County tuberculosis service in terms of morbidity and mortality rates, except in a very general way. This must obviously be deferred for several years in order to secure demonstrable results, which must be based on a statistical study which will compare the tuberculosis mortality in Cattaraugus County with mortality during previous years, and at the same time compare the trend of mortality in Cattaraugus County with the trend in similar rural counties. Such a statistical study is being made under the direction of the Division of Research of the Milbank Memorial Fund. It will be several years before the final results of this study are available. Meanwhile, reports on the progress of this study are being published from time to time. The latest and most detailed report on this subject will be found in the Milbank Memorial Fund's *Quarterly Bulletin* for April, 1928.[1]

It would appear that there have been certain forces at work which have been effective in decreasing tuberculosis mortality, especially during the first few years of the demonstration. It is known, for instance, that since the establishment of the demonstration a much larger number of moderately advanced and advanced cases have been placed under close supervision and given a period of sanatorium care, which has

[1]Sydenstricker, Edgar, The Decline in the Tuberculosis Death Rate in Cattaraugus County. Milbank Memorial Fund *Quarterly Bulletin*, April, 1928, p. 41. (N.B.—See also *Quarterly Bulletin*, January, 1929, p. 12.)

undoubtedly prolonged life, although in many of these cases there was little or no likelihood of ultimate recovery. It is to be expected that deaths of these individuals will be a factor in maintaining in the near future the previous number of tuberculosis deaths. On the other hand, if it has been possible to prolong the life of these individuals, it is reasonable to suppose the ultimate effect of such deaths should be considerably influenced by those patients discovered in the minimal stage, who will undoubtedly recover and their deaths never be recorded under tuberculosis mortality.

From the clinical standpoint, it is quite apparent that there are certain other factors inherent in such a demonstration as has been carried on in Cattaraugus County which tend to influence the certification of deaths unfavorably. A number of persons, particularly in the older age groups, suffering from chronic illness, have been diagnosed as having a complicating tuberculosis, usually of the chronic fibroid type. The fact that the diagnosis of tuberculosis has at some time been made, will in many cases result in this diagnosis appearing on the death certificate and, owing to the methods of classification of the joint causes of death adopted by the United States Bureau of the Census, the cause of death will be recorded as tuberculosis rather than as the disease which was the immediate cause of illness and the actual cause of death. Had there not been a careful search for tuberculosis, covering a large percentage of the total population, the tuberculosis element in a considerable number of these cases would, in all probability, never have been discovered or mentioned on the certificate of death as a contributory cause.

Another element that is expected to influence unfavorably the death rate from tuberculosis is the fact that Cattaraugus County is acquiring a reputation as a place for the treatment of tuberculosis. This is accounted for, in part, by the fact that

the J. N. Adam Memorial Hospital, a tuberculosis institution supported by the city of Buffalo, is located in Cattaraugus County; and in part by the fact that the reputation of the tuberculosis sanatorium and the tuberculosis service of the Cattaraugus County Department of Health has received a considerable amount of publicity.

As a result, a number of individual cases now under care are cases which have come to Cattaraugus County from elsewhere in New York and adjoining states. This fact will almost certainly influence to some extent the tuberculosis death rate in the future.

Entirely aside, however, from mortality, it is possible even at this time to show a number of very definite results of the program. It has, for example, been demonstrated very definitely that it is possible to set up an official community program for tuberculosis control in a rural county at a reasonable cost, a per capita cost no greater than is expended by some communities for tuberculosis hospitalization alone.[2]

It has been found entirely practicable in a rural section to organize and operate a diagnostic clinic service adequately supported by a generalized nursing service on a district basis. The required amount of diagnostic clinic service for this purpose has been found to represent a half-day clinic a month for every 5,000 to 8,000 population.

It has been demonstrated that the consultation service provided for physicians is freely used by them and results in a substantial increase in the number of tuberculosis cases reported. The cooperation of local physicians has increased the annual number of tuberculosis cases reported from an annual average of 76 for the five years prior to the organization of the Bureau of Tuberculosis to an annual average of 200. During

[2]A crude estimate of the approximate cost of the tuberculosis service in Cattaraugus County will be found in the Appendix, p. 81.

1927 the ratio of annual deaths to active cases was 1 to 5, and to all known cases, 1 to 16.

The portable X-ray equipment has been of material aid in medical diagnosis. Not only has it been used as an aid in the diagnosis of tuberculosis at the various clinic centers, but it has been an aid in the diagnosis of numerous other conditions referred by physicians, in remote rural sections where X-ray facilities are not available.

It has been shown that a community tuberculosis program will bring to light an increased number of known cases of tuberculosis in the rural sections, and that it has discovered between two and three cases of tuberculosis in each thousand population; and this in spite of a tuberculosis death rate which has for years been low.

The program as carried out has almost entirely changed the practice of the county sanatorium. From a place of last resort, the county sanatorium has been developed into a modern scientific institution, and as such is used each year by an increasingly large number of favorable cases. It has also been found entirely practicable to use the county sanatorium, with some changes in construction, for the treatment of children who previously received no hospital care.

It has been possible practically to eliminate bovine tuberculosis from the County.

While the above-mentioned results are recognized definitely as favorable, there are some problems which remain to be solved. Most important of these is perhaps the fact that there is a comparatively large number of cases of tuberculosis which do not come under medical observation until the late stage. This must, undoubtedly, indicate that an even larger number of cases in the early stages have not yet been found. While this condition has improved considerably, delayed diagnosis and reporting continues to be a constant problem.

Another factor which interferes seriously with the application of the program is the question of material relief for households in which there is a case of tuberculosis. The County Department of Health has constantly on record a number of adults with tuberculosis, who refuse treatment in the sanatorium because of the fact that their support is needed at home. Undoubtedly, some of these, at least, would enter the hospital if some method could be devised to provide for the material needs in their homes without appealing to public charities.

So far as the future of the work is concerned, it is believed that the present organization represents a reasonably adequate and practical community program for the control of tuberculosis. It is not planned to extend further this service either in personnel or program, the work during the next few years will be carried out on a routine basis, with such extra time as is available devoted to special studies and investigations. It is assumed that when the tuberculosis program is adopted on a strictly county basis there will be certain modifications of records and reports which have, during the last few years, been prepared in considerable detail in order to furnish material for studies and for the further development of the county program. It is quite probable that later there will necessarily be some reduction in the personnel. It would appear that ultimately the clinic service in a county the size of Cattaraugus would be carried by the superintendent of the county sanatorium, with the support of the nursing service of the County Department of Health, and with the assistance of voluntary agencies.

This summary of results and plans for future work is in no sense a conclusive or final judgment. They are, in a measure, casual observations, representing the present opinion of the director as indicating the line of progress for the future.

APPENDIX

A. THE TUBERCULOSIS RECORD SYSTEM

B. STANDARDS OF DIAGNOSIS AND CLASSIFICATION OF TUBERCULOSIS

C. BULLETINS ON VARIOUS PHASES OF DIAGNOSIS AND TREATMENT OF TUBERCULOSIS

D. COST OF THE TUBERCULOSIS SERVICE

SUPERVISORY AND OPERATING ORGANIZATIONS

AND PERSONNEL *of*

THE RURAL HEALTH DEMONSTRATION

in CATTARAUGUS COUNTY, NEW YORK

APPENDIX A

The Tuberculosis Record System of the Cattaraugus County Department of Health

The present tuberculosis record system consists in part in the continuation of those records which existed at the beginning of the demonstration, as required by State law, and in addition certain central office records to facilitate and to promote the work of the tuberculosis program. This system is the result of four years of experience in the development of a tuberculosis control program.

Through the courtesy of the State Department of Health, a list of tuberculosis deaths occurring in the ten-year period prior to the establishment of the County Department of Health, together with a list of cases which had been reported, was compiled from the official records at Albany. Names of other cases were obtained from the record of the county tuberculosis nurse and from other sources. The data accumulated from these sources furnished the initial material for the files now in use.

The tuberculosis record system at present consists of the following essential files:

1. *Notification report.* A card supplied by the State Department of Health to private physicians, institutions, and clinics, for the purpose of reporting cases of tuberculosis to the local health officer of the district in which the patient claims residence.

2. *Local health officer's register.* A register provided by the State Department of Health in which all notifications of communicable diseases, including tuberculosis, are entered by the local health officer in chronological order.

3. *County card file of notifications.* After countersigning and recording a notification of tuberculosis, the local health officer forwards the record to the County Department of Health. An exact copy is made for the county file of notifications, and the original is forwarded to the State Department of Health. The county file is arranged in alphabetical order by years.

4. *County register of cases.* A record book of all tuberculosis cases reported in the County, arranged in chronological order. This record

shows date reported, name, address, race, nationality, date of birth, sex, form of tuberculosis, stage and activity, together with information covering changes in stage and activity, sanatorium care, and the ultimate disposal of the case.

5. *County visible index.* A special card designed for use in either a visible index or a vertical file. The visible index is divided into health districts, with cards alphabetically arranged for each district. Celluloid signals of varied colors are placed at the bottom of each card to indicate the status of each case, the type of disease and sanatorium residence. A monthly statement of the status of all cases on the roster is made by a count of the color signals.

Once a month the files are cleared. The records of all patients who have died, recovered, or moved away from the County, as well as records of patients who can not be located, are removed and placed in the file described under the next point.

6. *County vertical file.* This file, which serves as the discharge file for the visible index described under point 5, is divided into three sections as follows:

a. Non-residents
b. Discharges because of death
c. Discharges for other reasons

The card used in this file is identical with that used in the visible index. Once a month the discharges from the visible index are placed in the proper section in the vertical file. Non-residents diagnosed by the clinic service are placed in the vertical file, as are also death record cards of patients who were not reported as tuberculous prior to death. A monthly statement of all changes made in the visible and vertical files is compiled so that corresponding information may be entered upon the register described under point 4.

7. *Tuberculosis deaths.* Copies of all death certificates are received by the County Department of Health from all local registrars. When a death from tuberculosis is reported, all available information regarding the case is filed with the Bureau of Tuberculosis.

8. *Records in health districts.* Clinics are held in the district stations. After each clinic the individual records of the clinical examination are sent to the central office, X-ray findings entered, and findings

and recommendations reported by letter to the attending physicians. After the clinic records have been numbered and checked with an alphabetical index of the clinic cases for the County, they are returned to the district office, where they are filed in alphabetical order.

For each tuberculosis case in her district, the nurse carries an individual history on which is entered the social history and a description of home conditions. Afterward details of the visit, together with a report of the patient's condition and progress, are recorded. At regular intervals throughout the year the director of the Bureau of Tuberculosis reviews these histories and reclassifies cases by stage and activity.

Records of cases of "contact" and "suspect" tuberculosis originate in the records of the public health nurses. A record of these cases is kept by the Bureau of Tuberculosis, until a definite diagnosis can be made.

APPENDIX B

Standards of Diagnosis of Tuberculosis and Classification Adopted by the Bureau of Tuberculosis for Use in Cattaraugus County[1]

TYPE OF TUBERCULOSIS

Incipient. Slight or no constitutional symptoms (including particularly gastric or intestinal disturbance or rapid loss of weight). Slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours. Expectoration usually small in amount or absent. Tubercle bacilli may be present or absent. Slight infiltration limited to the apex of one or both lungs or a small part of one lobe. No tuberculous complications.

Moderately advanced. No marked impairment of function either local or constitutional. Localized consolidation, moderate in extent, with little or no evidence of cavity formation; or infiltration more extensive than under the incipient type. No serious complication.

Far advanced. Marked impairment of function, local and constitutional. Marked consolidation of an entire lobe; or dissemination areas of beginning cavity formation; or serious complications.

Apparently arrested. All constitutional symptoms and expectoration with bacilli absent for a period of three months, the physical signs to be those of a healed lesion.

Quiescent. Absence of all constitutional symptoms: expectoration and bacilli may or may not be present; physical signs stationary or retrogressive; the foregoing conditions to have existed for at least two months. The length of time mentioned is of course somewhat arbitrary.

Improved. Constitutional symptoms lessened or entirely absent; physical signs improved or unchanged; cough and expectoration with bacilli usually present.

Active, unimproved, or progressive. All essential symptoms and signs unabated or increased.

[1]Adapted from the standards prepared by a special advisory committee of the National Tuberculosis Association and from the standards of the United States Public Health Service for classification of tuberculous ex-service men.

APPENDIX C

Bulletins on Various Phases of the Diagnosis and Treatment of Tuberculosis, Issued in 1926 to Physicians of Cattaraugus County

1. The Responsibility of the Private Physicians in the Control of Tuberculosis.
2. Classification of Tuberculosis.
3. Modes of Infection in Tuberculosis.
4. Immunity and Resistance against Tuberculosis.
5. Diagnosis of Tuberculosis in Children, especially in reference to Hilum Tuberculosis.
6. Tuberculous Infection in Children.
7. History in the Diagnosis of Pulmonary Tuberculosis.
8. Physical Examination in the Diagnosis of Pulmonary Tuberculosis (Inspection).
9. Physical Examination in the Diagnosis of Pulmonary Tuberculosis (Palpation and Percussion).
10. Physical Examination in the Diagnosis of Pulmonary Tuberculosis (Auscultation).
11. X-ray in the Diagnosis of Pulmonary Tuberculosis.
12. The Differential Diagnosis of Pulmonary Tuberculosis.
13. The Differential Diagnosis of Conditions in which the History and Symptoms are Suspicious of Tuberculosis.
14. The Differential Diagnosis of those Conditions which present Physical Signs in the Chest Simulating Tuberculosis.
15. A Summary of the Differential Diagnosis of Tuberculosis.
16. Treatment of Tuberculosis.
17. Treatment of Tuberculosis (Rest).
18. Treatment of Tuberculosis (Fresh Air).
19. Treatment of Tuberculosis (Food).
20. Treatment of Tuberculosis (Exercise).
21. Treatment of Tuberculosis (Artificial Pneumothorax).
22. Treatment of Tuberculosis (Surgery).
23. Treatment of Tuberculosis (Heliotherapy).
24. Treatment of Tuberculous Cervical Adenitis.

3. Diffuse shadows of varying density throughout the hilum.
4. Definite parenchymal shadows. (Small isolated masses of tubercle with sharply defined edges, fibrous or undergoing calcification.) These primary lesions show no mottling or perifocal infiltration about them. They may occur as single or multiple foci.

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21. Treatment of Tuberculosis (Artificial Pneumothorax).
22. Treatment of Tuberculosis (Surgery).
23. Treatment of Tuberculosis (Heliotherapy).
24. Treatment of Tuberculous Cervical Adenitis.

TUBERCULOSIS BULLETINS ISSUED IN 1927 TO PHYSICIANS OF CATTARAUGUS COUNTY

1. International Tuberculosis Platform Foundation for Future Activities.
2. The Value of Sputum Analyses in the Diagnosis of Pulmonary Tuberculosis.
3. Deaths from Tuberculosis.
4. The Contagion of Tuberculosis.
5. The Communicability of Tuberculosis in Adults.
6. Broadening the Tuberculosis Program.
7. Errors and Difficulties in the Diagnosis of Pulmonary Tuberculosis.
8. Latent Tuberculosis in Children.
9. The Diagnosis of Latent Tuberculosis.
10. Treatment of Children with Latent Tuberculosis.
11. Tracheo-bronchial Gland Tuberculosis.
12. Tuberculin Surveys.

APPENDIX D

Cost of Tuberculosis Service in Cattaraugus County

It is somewhat difficult at this time to give a statement of definite expenditures showing the total cost of tuberculosis service in Cattaraugus County. The expenditures covering the entire services are not segregated and are not available without careful cost studies showing the percentage of time and expenditures rendered by different agencies for the prevention and treatment of tuberculosis. There are, however, certain definite costs directly chargeable against tuberculosis which will in total represent an approximation of the cost. Such items are: the cost of maintenance of the county tuberculosis hospital, approximately $40,000 annually; the expenditure of the Bureau of Tuberculosis of the County Department of Health, about $10,000 annually; the cost of the Olean tuberculosis clinic, about $2,000 annually; and the county nursing service, amounting to about $10,000 annually. The cost of the nursing service is computed by adding to the salary and expenses of the tuberculosis supervising nurse a figure which is based upon percentage of time spent by the field nurses upon clinics and home visits to tuberculosis cases. This gives a total for direct tuberculosis service amounting to $62,000 a year, or $.84 per capita, a figure not unusually high when it is realized that some communities spend $1 per capita for tuberculosis hospitalization alone. The above figure does not include certain indirect expenditures which benefit the tuberculosis service, such as the health camp, operated and maintained by the Cattaraugus County Tuberculosis and Public Health Association, the educational services of that association, the assistance given in the search for contacts by the school and community nurses, the laboratory service, together with the general administrative services of the County Department of Health. Such costs, however, are minor in amount and are not ordinarily included in the figures showing the cost of public health activities in tuberculosis control. In addition, it should not be forgotten that individual physicians, local health officers, citizens and civic organizations have been interested in the work and have furnished substantial assistance in carrying out the program, a service which it is not possible to measure in dollars and cents.

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THE NEW YORK HEALTH DEMONSTRATIONS were instituted by the Milbank Memorial Fund in 1923. They comprised three separate projects in intensive community health administration in New York State —one in rural Cattaraugus County, another in the urban community of Syracuse, and the third in the metropolitan Bellevue-Yorkville district of the City of New York.

The Board of Directors of the Milbank Memorial Fund set aside approximately $2,000,000 to be used over a period of years in supplementing the resources of public and private health agencies in these demonstration localities to help them develop locally effective methods of advancing disease prevention and health conservation.

Through the Fund's Advisory Council, Technical Board, and other advisory groups, there has been available to the demonstration communities expert consultation and counsel in the several fields of public health administration. These boards are composed of leaders in the fields of education, medicine, and public health administration, including the Surgeon General of the United States Public Health Service and the Commissioners of Health of the State and City of New York.

In initiating and in forwarding these demonstrations, as in seeking to reach its other humanitarian objectives, the Milbank Memorial Fund has co-operated with, and made its contributions through, established organizations, official and voluntary, and has thus attempted to capitalize existing organization and personnel. Each demonstration has been under the auspices of the local departments of health and education, and directly or indirectly under the supervision of the local health officers.

Acting as a liaison agency between these local groups in the Cattaraugus County and Syracuse health demonstrations and the Milbank Fund and its boards of counsel, has been the State Committee on Tuberculosis and Public Health of the State Charities Aid Association. The Community Health Council has acted in a similar capacity for the Bellevue-Yorkville Health Demonstration in the City of New York. The Council is composed of fifty-six local health and social agencies, including the Department of Health of the City of New York.

SUPERVISORY *and* ORGANIZING AGENCY

of the

RURAL HEALTH DEMONSTRATION

in CATTARAUGUS COUNTY

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The State Committee on Tuberculosis and Public Health of the State Charities Aid Association (which in May, 1922, was designated by the Milbank Memorial Fund's Board of Directors to represent the Fund in organizing and supervising the rural health demonstration in Cattaraugus County, and the urban health demonstration in the City of Syracuse) has from the first cooperated in developing the various health activities in the demonstration programs in these two areas, assisted in the preparation of new projects, and provided advisory services for the local operating agencies. Through its state-wide contact with health and welfare agencies, it has been of assistance, for example, in securing personnel, in providing special facilities for the study and analysis of the various health projects, and in helping local agencies in the formulation and presentation of budgets and reports to the Milbank Memorial Fund. It submits recommendations as to budgets and programs for each area.

Through visits, conferences, and a system of monthly reports, the State Committee kept in intimate touch with the progress and developments of the work in each area. It submitted monthly, semi-monthly, and annual financial statements to the Technical Board and Board of Directors of the Fund.

In general, the State Committee acted as a liaison agency between the local operating organizations on the one hand and the boards of counsel of the Milbank Memorial Fund and other state and national groups on the other, thus providing for these two health demonstrations a constructive background based on the accumulated experience of state and national authority upon which the success of the demonstrations in no small measure depends.

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and PERSONNEL *of*

The RURAL HEALTH DEMONSTRATION

in CATTARAUGUS COUNTY, NEW YORK

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